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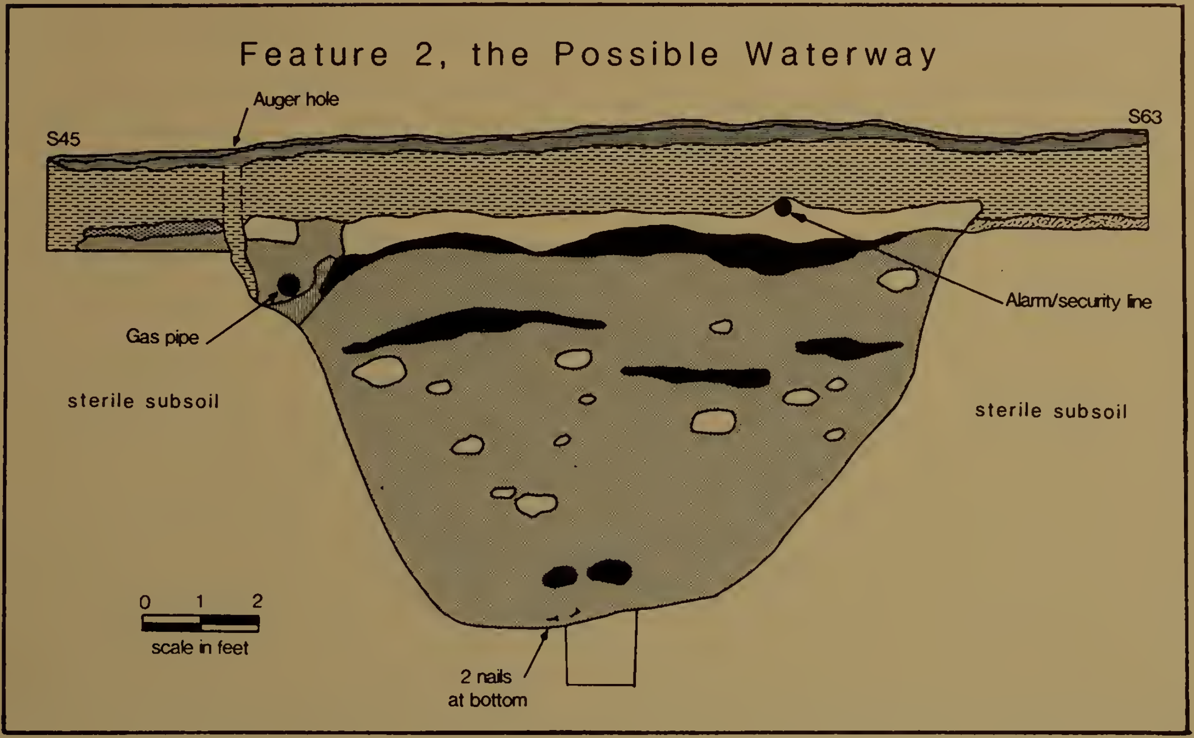

THE SAUGUS IRON WORKS
NATIONAL HISTORIC SITE

MASSACHUSETTS

ACMP Series No. 5

Division of Cultural Resources
North Atlantic Regional Office
National Park Service
U. S. Department of the Interior

Illustration on Cover: Profile of Feature 2, the Possible Waterway (from Moran 1976c).

ARCHEOLOGICAL COLLECTIONS MANAGEMENT AT THE SAUGUS IRON WORKS NATIONAL HISTORIC SITE

MASSACHUSETTS

ACMP Series No. 5

Darcie A. MacMahon

with a contribution by Kurt M. Faust

Division of Cultural Resources
North Atlantic Regional Office
National Park Service
U.S. Department of the Interior
Boston, Massachusetts
1988

Collections represent a valuable resource only if they are properly documented, conserved, and organized in such a manner that their research value is maintained ....To maintain their research value, both collections and their associated documentation must be accessible, and they must be protected from deterioration.... Without a doubt, there is a crisis in curation (Marquardt et al. 1982:409, 411).

Preface and Acknowledgements

This report is the fifth in a series of Archeological Collections Management Project (ACMP) reports produced by the North Atlantic Regional Office of the National Park Service (NPS). The purpose of this project has been to process, catalog, prepare for storage, and analyze the uncataloged archeological collections at the Saugus Iron Works National Historic Site (SAIR). The result is a better-documented and accessible collection, as well as a few insights into the history of the Iron Works House property. The results of the project will hopefully be useful to both Park management and curatorial personnel, as well as to outside researchers.

This is the first ACMP which has included the production of NPS catalog cards. This was accomplished using the recently developed NPS Automated National Catalog System (ANCS). The computerized files created in ANCS can be manipulated in ANCS or dBASE III+ for both collections management and research purposes. We hope that independent researchers will find the data to be in useful form for their own studies.

Many people have contributed to the success of this project and the production of this volume. First and foremost I would like to thank Linda Towle, who was manager of the ACMP when the SAIR project began. Although Linda's responsibilities have since been expanded, she still plays a vital managerial role for the project. Linda's ideas have helped tremendously in shaping this volume, and her editorial comments as an archeological colleague have been invaluable.

Frank McManamon, former Chief of the Division of Cultural Resources (DCR) of the NPS North Altantic Region, was instrumental in initiating the ACMP. His efforts have been continued by Myra Harrison, the current Chief of DCR, who has been a strong advocate of the project goals. Their support is much appreciated.

The SAIR staff also deserves a great deal of thanks for their cooperation and assistance. David Kayser, who was the Park Curator during this project, provided curatorial expertise with unflagging enthusiasm. His commitment to the preservation of the Park's archeological collections led him to the unravelling of several collection documentation problems, which are recounted in this report. Jim Gott, the Park Superintendent, and Frank Studinsky, the Park's Chief of Interpretation, also provided the ACMP with information and support. Curtis White, a Park Interpreter, aided us in interpreting Roland Robbins' original field notes and in preparing the 4,443 catalog cards for their final distribution. And last but certainly not least, Carl Salmons, the current Park Curator, has been extremely helpful in the last stages of the project.

Appreciation is also due to a number of my co-workers at the Eastern Archeological Field Lab and the North Atlantic Historic Preservation Center. Historical Architect Orville Carroll willingly shared his knowledge about the Iron Works House and site. The actual cataloging of the SAIR collections was done by Doreen Crowe and Mary Ann Larson. Their efforts were fundamental to the project, without which the remainder could not have been completed. Jeannine Disviscour helped in researching the ACMP vessel glass definitions, and offered feedback and joint experimentation with dBASE III+ file manipulation. Kurt Faust did an excellent job of drafting the graphics for this volume and assisting with the text. Kurt also wrote the Map Construction section of the report. One of the figures, the ACMP site plan, was originally drafted by George Stillson. Additional and much valued assistance in preparing the volume was given by Maria Capozzi, Louise DeCesare, and Joan Olsson; and Barbara Kadlec and Debbie DiRusso nearly sacrificed their sanity in typing Appendix 2 and the tables.

Other professionals generously responded to questions and provided their input during the background research for this volume. Several had been previously involved with the archeological collections at SAIR, including Daniel Roberts of John Milner Associates, who kindly forwarded all material from the 1976 project which remained in their files. Dennis Piechota and Russell Barber answered questions about the nature of the cataloging and conservation of Roland Robbins' collection. Barbara Leudtke shared her New England lithic expertise by evaluating the SAIR assemblage of Saugus jasper with the ACMP staff. The cooperation of these individuals has enabled us to produce a more complete and informative report.

Darcie A. MacMahon
Charlestown, Massachusetts
July 30, 1988

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Introduction

In the summer of 1976, Geoffrey Moran of Brown University conducted an archeological project on the grounds of the Saugus Iron Works House, then known as the Ironmaster's House (Moran 1976a). The project was subsequently reported on, through a separate contract, by Alex H. Townsend and Daniel G. Roberts of John Milner Associates (hereafter referred to as Milner) (1978). A large collection of both historic and prehistoric artifacts was recovered during the 1976 excavations. Prior to the current Archeological Collections Management Project (ACMP), the collection had not been cataloged by NPS standards. It is this collection which forms the central focus of this report.

The Iron Works House is located on top of a bluff overlooking the Saugus River, approximately three miles upstream from the Atlantic Ocean, in Saugus, Massachusetts (Figures 1 and 2). It will be referred to as the Ironmaster's House in this report, in order to maintain consistency with the original excavation reports, the accession book title for the collection, and the catalog cards. The house is part of the Saugus Iron Works National Historic Site (SAIR), which was turned over to the National Park Service (NPS) by the First Ironworks Association in 1969. The primary focus of the Park is the reconstructed Iron Works itself, consisting of a number of industrial structures located at the foot of the bluff on the river floodplain. The Iron Works was the first successful integrated ironworks in North America, operating from about 1646 to sometime between 1668 and 1676 (Hartley 1957:8; Carlson 1973:54-56; Cummings 1975:16). Recent architectural and historical scholarship indicate that the Ironmaster's House was constructed at a later date, ca. 1682-83, shortly following the cessation of industrial operations at the site (Cummings 1975:20).

A large-scale archeological program conducted between 1948 and 1953 provided the major physical evidence for the reconstruction of the industrial site. The artifact collection which resulted from this earlier project had already been cataloged on NPS catalog cards, and thus did not fall within the scope of the current project. However, it should be noted that a previous version of the NPS catalog card was used, and at some point the collection should be recataloged using current NPS catalog cards. Although recataloging was beyond the scope of the ACMP, the Robbins' collection will be briefly discussed in this report as part of a general assessment of the archeological collections from SAIR projects.

Several additional projects at the Park have also resulted in the recovery of artifacts from archeological contexts, although the projects themselves have not been archeological in nature. The ACMP cataloged two such collections (Accessions #43 and 45), and both will be discussed in this report.

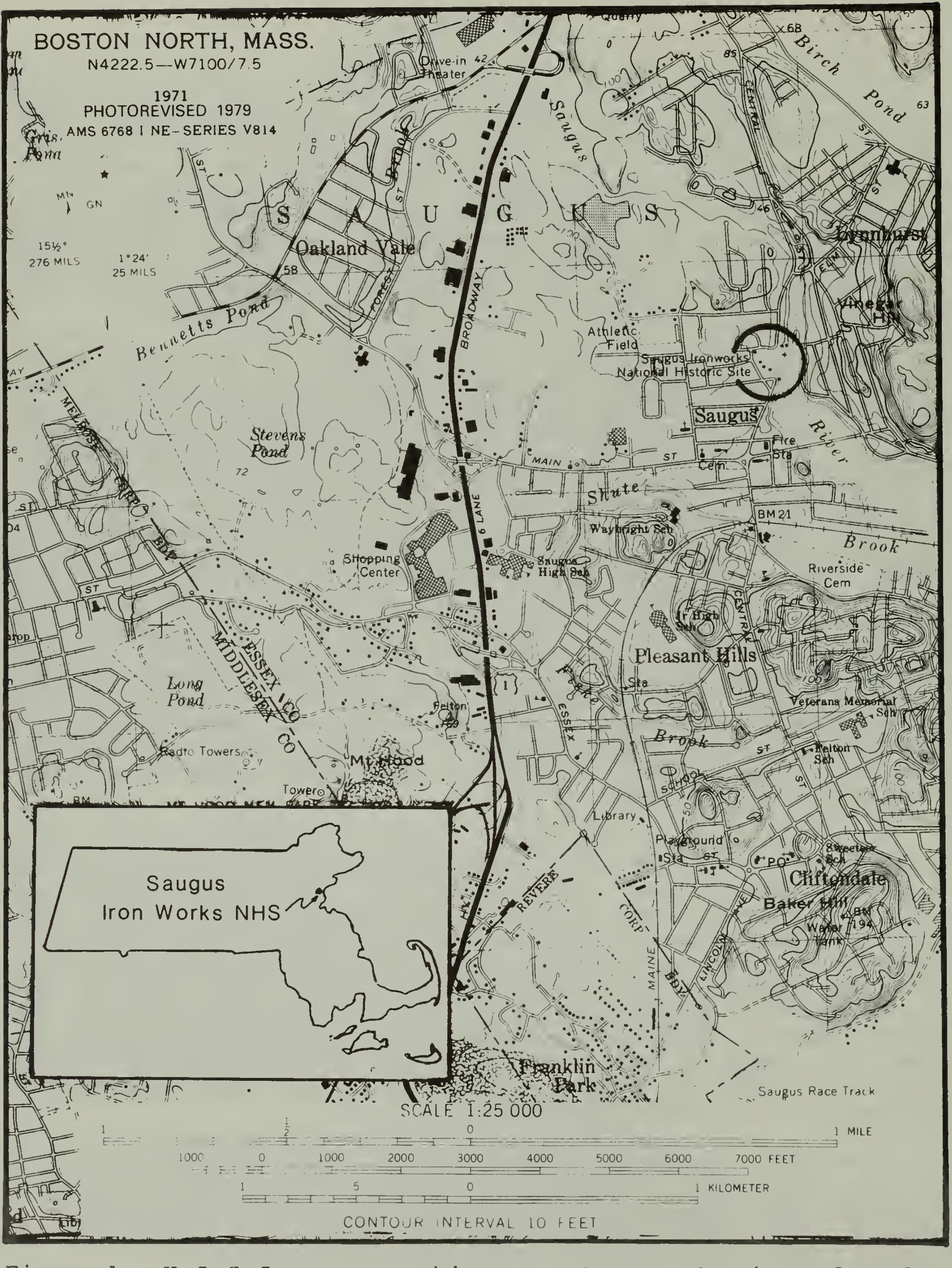


Figure 1. U.S.G.S. topographic map, Boston North quadrangle, with location of Saugus Iron Works National Historic Site circled on the upper right corner of the map.

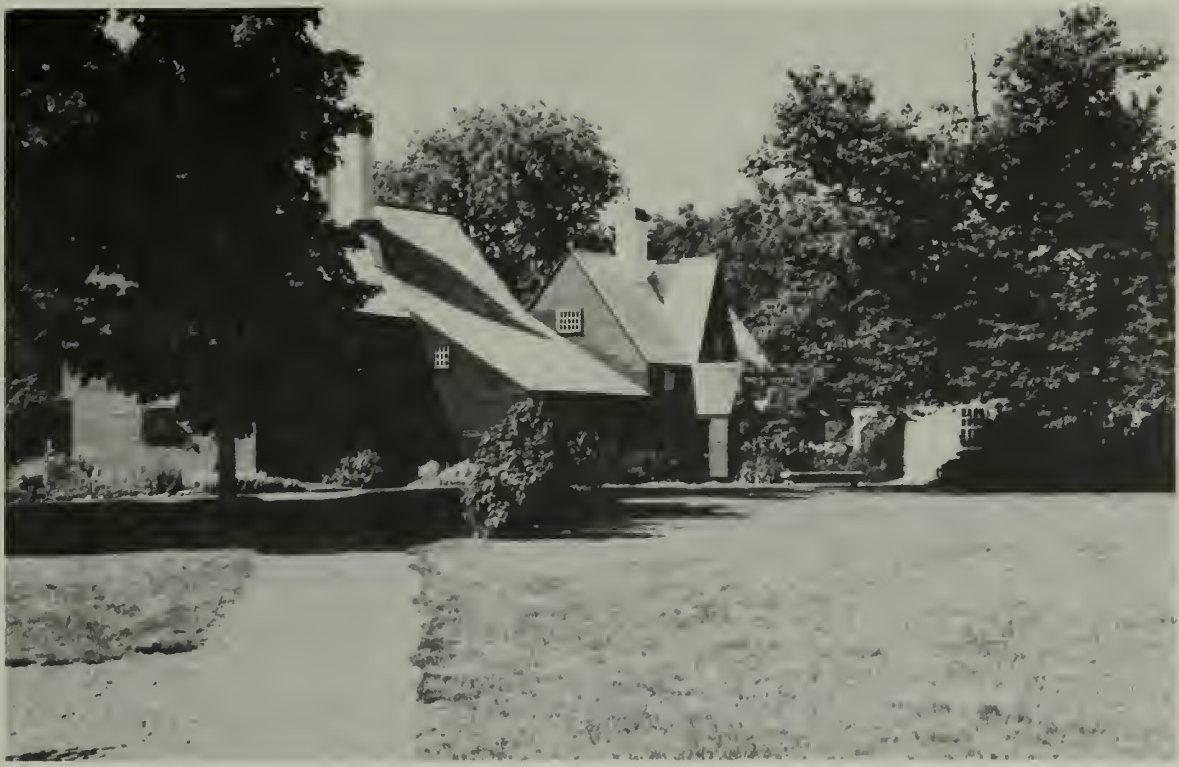


Figure 2. 1988 photograph of the area behind the Iron Works House, looking southwest. This was the main area of excavation in 1976. Note Iron Works House in background and museum building beneath trees to right.

The Archeological Collections Management Project (ACMP)

During the last decade, there has been much discussion about the lack of adequate care given to archeological collections in museums and other collections repositories. Both academic and museum professionals have begun to recognize the value of such collections for research and educational purposes, and thus the importance of their proper curation (e.g., Christenson 1979; Cantwell et al. 1981; Marquardt et al. 1982; American Association of Museums 1984; Towle 1987).

As a result of this increasing concern, the ACMP was initiated in 1981 by the Division of Cultural Resources of the North Atlantic Regional Office (NARO) of the National Park Service (NPS). The goal of the project was to inventory and reorganize the archeological collections held at various parks in the region, and to make them accessible to both park staff and independent researchers for curatorial, interpretive, and research purposes. The first three ACMPs were done for Salem Maritime National Historic Site in Salem, Massachusetts (Synenki and Charles 1983a); Morristown National Historical Park in

Morristown, New Jersey (Synenki and Charles 1983b); and the Great Island Tavern Site at Cape Cod National Seashore in Massachusetts (Synenki and Charles 1984). The fourth ACMP was conducted for the large archeological collection at Minute Man National Historical Park in Concord, Lincoln, and Lexington, Massachusetts. Its scope was broadened to include a reanalysis of the collections from each site at the Park, which would serve as background research for the concurrent Minute Man NHP Archeological Project. The reanalysis would also provide the Park staff with more information for interpreting the sites to the public (Towle and MacMahon 1986, 1987).

During the completion of the ACMP for MIMA, two issues arose on a national scale which changed the course of future ACMPs. First, a Service-wide push began for the cataloging of uncataloged NPS collections. This push was summarized in a memorandum released by the NPS Chief Curator, calling for the Service to "bring about full accountability for and sound management of its collections" (Hitchcock 1987:1), according to the standards set in the NPS Museum Handbook (NPS 1984). She cited the estimated backlog of uncataloged NPS collections as 22.6 million objects (Hitchcock 1987:1). In addition, the new NPS Automated National Catalog System (ANCS) was introduced, providing the capability for computerized cataloging. In response, the ACMP shifted its orientation to inventory those NARO archeological collections which had not been previously cataloged. In conjunction, a computerized data base and printed catalog cards would be produced using the new ANCS.

In May of 1985, Linda Towle, who later became the ACMP manager, initiated an "Accountability Project" assessment phase to determine how many uncataloged archeological collections there were at each park in the region. The final report included a table for each park which summarized the status of the park's archeological collections (Towle 1985:Appendix III). The table for SAIR has been included as an appendix to this report (Appendix 1). The recommendations presented in the assessment report gave direction to the ACMPs which followed.

The first ACMP to be conducted after the assessment, and the fifth ACMP for NARO collections, was for Lowell National Historical Park in Lowell, Massachusetts. The current ACMP for SAIR is thus the sixth ACMP to be conducted in the region and the second ACMP to produce NPS catalog cards using the ANCS.

Following the assessment, we decided that for many parks a basic report describing ACMP procedures would suffice, but in certain cases a more extensive report would be in order. This would be true for parks with large archeological collections, collections from research projects which had never been adequately reported on, or collections from multiple research projects which had never been synthesized for interpretive purposes. These reports would include a reanalysis of the collection when appropriate and an overall site interpretation. We felt that the SAIR collections merited such treatment.

The SAIR Archeological Projects and Collections

During the assessment phase, four uncataloged archeological collections were identified for SAIR (Appendix 1). The major collection was Accession #13, the artifacts from Moran's 1976 excavation on the Ironmaster's House grounds. Both Moran's report (1976a) and the later report by Milner (1978) referred to the site as the "Ironmaster's House," the name by which the structure was then known. Thus the artifact collection was accessioned under this name, although the house has more recently been renamed the "Iron Works House." In order to be consistent with the accession book as well as with the original excavator and subsequent reports, the site will be referred to as the Ironmaster's House in this report and on the catalog cards.

The remaining three uncataloged collections contained artifacts which had been recovered during Park maintenance or preservation projects: Accession #15 from the parking lot construction in 1978; Accession #43 from under the Iron Works House addition, collected by staff of the NPS North Atlantic Historic Preservation Center (NAHPC) during renovation of the Iron Works House in 1982; and Accession #45 from various places on Park property, collected by Youth Conservation Corps (YCC) student workers and accessioned in 1984 (Appendix 1). Between the time of the assessment and the beginning of the ACMP for SAIR, Park Curator David Kayser had cataloged Accession #15, leaving Accessions #13, 43, and 45 for the ACMP.

The ACMP was not directly concerned with the additional archeological collections which had already been cataloged or which were otherwise unavailable. However, these collections are an important part of the overall SAIR archeological holdings, and merit at least brief comment in this report. Perhaps the most significant collection is that which was recovered during Roland Wells Robbins' excavations of the Iron Works in the late 1940s and early 1950s. Robbins had been hired by the First Ironworks Association and the American Iron and Steel Institute to excavate the remains of the Iron Works and to provide the necessary evidence for its reconstruction (Brown 1975:1). Robbins' work was conducted before the NPS took over management of the site from the First Ironworks Association in 1969. The artifacts from his excavations were accessioned as a part of the overall collections at the Park in 1969 as Accession #1.

In 1973, the NPS contracted with conservator Dennis Piechota to catalog and conserve Robbins' archeological collection (Piechota 1973:1). At this time, some of the collection was discarded and the rest was cataloged and conserved. This project was reported on by Piechota (1973) and Barber (1973a, 1973b), and will be further discussed later in this report. In 1975, the NPS hired archeologist Marley R. Brown III of Brown University to write a report summarizing Robbins' excavations based upon his extensive field notes, as Robbins himself never completed a final report (Brown 1975:2). Brown's recommendations for further archeological investigation of the site formed the basis for Moran's 1976 excavations in the vicinity of the Ironmaster's House.

Outside of Robbins' extensive excavations and Moran's excavations around the Ironmaster's House, there have been two smaller scale archeological projects conducted at SAIR. The first was also conducted by Moran while he was working at the Ironmaster's House. A project was underway to renovate the existing carpenter's shop on the east bank of the river, and Moran was hired to do some preliminary testing to determine if the project would adversely affect the archeological resources in that area. The project correspondence preceding this testing noted that all "artifacts encountered will be treated and catalogued" (Moran 1976b), and the report on the testing noted that artifacts had been recovered (Moran n.d.:2-4). However, no such artifacts were accessioned at SAIR and the collection remains missing.

The fourth archeological project at the Park was conducted by NPS Regional Archeologist Frank McManamon in 1978 prior to the installation of two new sewer lines near the Ironmaster's House. A memorandum describing this testing noted that cultural materials were located (McManamon 1978). However, these materials were left in the ground (personal communication 1985), and thus are not present in the SAIR collections.

Several previously-cataloged SAIR accessions contained artifacts which were recovered from archeological contexts but not during actual archeological projects. Accession #19 consisted of artifacts recovered in 1982 by Youth Conservation Corps workers during the installation of the water recirculation system in the Iron Works area. This entailed the excavation of an area near the warehouse for a water tank as well as trenches for underground lines used to deliver water to the waterwheels. Recoveries included glass, slag, a hammer head, pipes, and timber fragments (David Kayser, personal communication 1987). These materials were most likely from areas which had been heavily disturbed during Robbins' earlier excavations.

Accession #15 contained a single prehistoric stone plummet which was found during the construction of the current parking lot to the south of the Ironmaster's House. Accession #14, a 1978 gift from Joseph LaFrance, also contained prehistoric artifacts. The collection contained 1408 lithic and ceramic artifacts which LaFrance had collected from the Iron Works property during Robbins' excavations. These were reportedly recovered from the excavation area, in the vicinity of the industrial features (David Kayser, personal communication 1987). While this collection has no further provenience information, it does provide an important comparative collection for the prehistoric materials recovered during archeological projects on the property. The LaFrance collection was cataloged in 1985 by archeologist Tonya Largy, who was hired for four days by the Division of Cultural Resources, NARO, to complete this task (NPS n.d.).

A final group of prehistoric artifacts was accessioned as a gift from George Small, who lives on the east side of the Saugus River adjacent to Park property (Accession #42). Small collected this group of 16 stone tools over the last 25 to 30 years from his house lot (David Kayser, personal communication 1987). These were also cataloged in 1985 by Tonya Largy, and the area was recorded as state site #19-ES-518. Although the artifacts were recovered from a private house lot, they are certainly related to the prehistoric materials recovered within Park boundaries. Both the LaFrance and Small collections were cataloged on the old version of the NPS catalog card (Form 10-254, May 1957), and at some point will require recataloging on the current NPS cards.

It should also be noted that after the ACMP completed the cataloging of uncataloged SAIR archeological collections, Curator Kayser was able to reacquire a small number of artifacts which had been culled during the cataloging and conservation of Robbins' collection (part of Accession #1) in 1973. This project and the culling procedures utilized are further discussed in the Collection Summary section of this report. The reacquired objects had been held in the private collection of a former Park employee, and were assigned Accession #91. They included: a sow fragment, a pot leg, a nail, two sprues, a ladle bowl, and a piece of flat iron. These materials have no further provenience designations, and have not been cataloged.

The Ironmaster's House Project

The 1976 Ironmaster's House excavation was actually Phase II of a project initiated to better understand the remaining archeological resources on the SAIR property. As stated by the NPS Acting Regional Director at the time, "despite Robbins' extensive work, many questions remained unanswered about the architectural, industrial, and cultural resources of the Ironworks" (Hovig 1976:1). The first phase of the project was Marley R. Brown's evaluation of Robbins' excavations, including an assessment of the areas of the site which retained archeological potential (Brown 1975:1; Hovig 1976:1). Brown used Robbins' field notes to identify the areas which had been

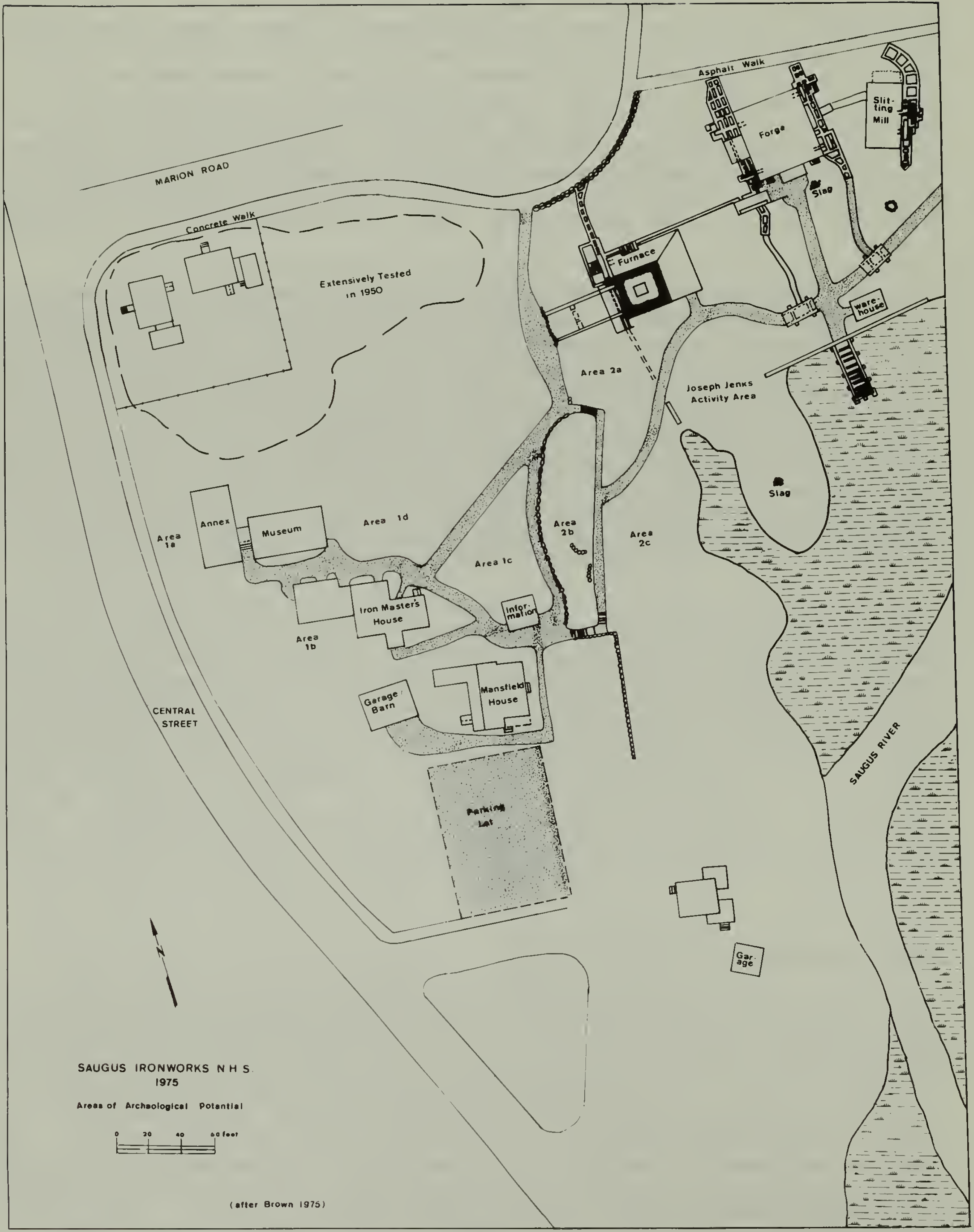


Figure 3. Milner's map of Park areas with archeological potential, originally drawn by Brown (1975:Figure 2) and later drafted by Milner (1978:Figure 1-1).

> 1) the site of the Ironmaster's House and surrounding grounds...; 2) the bluff above the so-called "Jenk's area" to the west of the existing slag heap...; and 3) the east bank of the Saugus River south of Bridge Street (Brown 1975:19).

The first two areas were further subdivided and discussed more specifically as to their potential. A map of these areas was refined by Milner for their report and is reproduced here as Figure 3.

When NPS contracted with Brown University for Phase II of the project, the decision had been made to investigate only the first of the three areas identified by Brown, that of the Ironmaster's House grounds (Hovig 1976:1-2). The work was to be conducted by Geoffrey Moran, Research Associate at the University, with Dr. James Deetz serving as Principal Investigator (Hovig 1976:1). The scope of work called for two months of fieldwork, including a soil resistivity study, an auger survey, and test excavations (Moran 1976a:2; Hovig 1976:2). This was completed between early May and mid-July of 1976 (Moran 1976a:2). Although Moran wrote a preliminary report on his excavations (Moran 1976a), a separate contract was awarded to John Milner Associates to write the final excavation report (Milner 1978).

Originally a Phase III had been recommended to further excavate significant features discovered during Phase II, and was also to be conducted by Brown University (Wagers 1976:2). Phase III was discussed repeatedly in the project file correspondence (NPS n.d.). However, no such distinct phase of excavation was undertaken.

Both historic and prehistoric features were discovered during the 1976 excavations. The reports discussed two major historic features: a stone foundation; and a feature believed to be an extension of an earthen waterway which Robbins had reportedly uncovered in the vicinity of Greystone Road, north of the 1976 excavation area. These features and other excavation results will be discussed in more detail later in this report.

Project Methodology

In April of 1986, the ACMP retrieved the uncataloged archeological collections (Accessions #13, 43, and 45) from the storage area in the SAIR museum. The artifacts were then transported to the Eastern Archeological Field Laboratory (EAFL) at the Charlestown Navy Yard, Boston NHP, in Charlestown, Massachusetts, for processing.

Prior Condition of the Collections

At this time, most of the Accession #13 collection was stored in metal storage cabinet trays, with artifacts separated by provenience into chipboard boxes. Each box contained a paper tag on which Milner had written the associated provenience information. This information was taken from the original field bags used to store the artifacts following the 1976 excavation. After Milner inventoried the materials, they were bagged by artifact class in cloth bags which were tied shut and which contained the paper provenience tags. These were subsequently returned to SAIR in January of 1978 (Daniel Roberts, personal communication 1987). SAIR Curator Kayser later transferred the Accession #13 artifacts and tags from the cloth bags to the chipboard boxes and metal storage cabinet trays (David Kayser, personal communication 1987). Thus, when the ACMP began, the artifacts were sorted by proveniences which reflected the original field bag designations.

A small portion of the Accession #13 materials had been cataloged prior to the ACMP. These were the prehistoric lithic tools and prehistoric ceramics identified during Milner's inventory. When Milner returned these artifacts to the Park, Museum Technician Susan Mackiewicz assigned them individual catalog numbers which were then written in ink on the artifacts. Mackiewicz typed up NPS catalog cards (Form 10-254, May 1957) using the artifact descriptions which had appeared in Milner's report (1978:32-41). The ACMP recataloged these materials according to the ACMP system, while retaining the original catalog numbers (SAIR 3424-3477, 4843-4846). A few of these objects were in closed exhibit cases (Catalog # SAIR 3424, 3429-3430, 3435-3438, 3474-3475). These were cataloged by looking through the glass, and remain on exhibit in the SAIR museum. The previously cataloged artifacts were included with the rest of the Accession #13 collection in the computerized data base, and new catalog cards were produced.

In addition to artifacts, original field documentation (including maps, photographs, and daily field notes) are an important component of any archeological collection. Portions of the original field documentation from the Accession #13 excavation were returned to SAIR following the completion of

Milner's report. These included a ring-bound notebook of daily field notes, a listing of resistivity values, a hand-drawn resistivity contour map, and three rolls of black and white negatives. These were stored in the SAIR accession folder for this collection. All other documentation, including excavation unit plans and profiles as well as an original site plan, were missing. When contacted, Milner Associates was able to locate some of these records in their files, and forwarded them to the ACMP. The ACMP made acid-free copies of field notes and excavation unit plans and profiles, all of which were returned to the Park for storage with the Accession #13 documentation. These records were lot cataloged as archival documents (catalog # SAIR 9481-9485) (Table 1).

Table 1

Accession #13
Available Collection Documentation

Field Notes (Catalog # SAIR 9481)

One ring-bound notebook of daily excavation records
One set of resistivity values

Field Photographs (Catalog # SAIR 9482)

Three rolls (64 frames) of black and white negatives

Field Maps (Catalog # SAIR 9483)

Original site plans (2)
Excavation unit plans and profiles (31)
Auger survey profiles (30)
Auger survey artifact distributions (1)
Resistivity values (2)
Resistivity deviation profiles (2)
Sketch of sectors (1)

Original Report Figures (Catalog # SAIR 9484)

Set of original drawings for Milner 1978 report (missing Figures 5-1 to 5-5)

Laboratory Analysis Records (Catalog # SAIR 9485)

Artifact totals by functional categories
Resistivity data computer entry sheets
Miscellaneous analysis notes
Two notebooks of artifact inventory sheets (John Milner Associates)

Artifacts from accessions #43 and 45 were stored at SAIR in separate plastic bags as single units. Beyond the accession titles themselves, no further provenience information was available.

ACMP Provenience System

The ACMP imposed an ordering system upon the Accession #13 proveniences prior to assigning catalog numbers. The ordering followed the provenience categories used by Moran: first, the general area of the site, designated as "Sectors" 1 through 5; and second, a grid location within each sector for each excavation unit. The five sectors of the site are delineated on the site plans in this report (see Figures 6 and 8). They were recorded as 2E1 through 2E5, with the 2 signifying the "second site excavated in Essex County" (presumably the second Essex County site excavated by the Brown University group), and the E representing Essex County (Moran 1976c:1).

Moran's Sector numbers were thus the first factor in the provenience ordering. The grid designations were ordered within these sectors, with all East coordinates listed in numeric order, preceding West coordinates. If both North and South coordinates occurred for a specific East or West line, the North coordinates were listed first in numeric order. The proveniences are listed in Appendix 2.

Provenience designations were taken directly from the provenience tags stored with the artifacts and thus reflect any original inconsistencies. The most common inconsistency was in the designation of stratigraphic levels, where the terms lot, level, or layer were used, or the depth in inches was noted in place of a level designation. Other inconsistencies included missing Sector numbers and occasional but unsystematic notations concerning such things as soil type or areas within the units. These inconsistencies probably originated on the field bags, and could not be conclusively resolved. The ACMP therefore maintained the original provenience designations in spite of their inconsistencies.

The provenience information was abbreviated to facilitate computer entry. At times, the length of the ANCS field for provenience (45 characters) limited the amount of notation which could be included. In these cases, the original full notations may be found in Appendix 2 juxtaposed with the ACMP abbreviated provenience code. The ACMP codes included all of the original provenience data which seemed associated with significant horizontal or vertical provenience information. In general, the ACMP codes should be self-explanatory, and appear in basically the following format: Sector, Excavation Unit Grid Coordinate, Stratigraphic Level (e.g., SEC 2E1, E8/S120, LOT 1). The standard abbreviations include SEC (Sector), FEAT (Feature), TR (Trench), and L (Level). Appendix 2 provides a listing of: the provenience data as it appeared on Milner's paper tags; the ACMP provenience codes; and the SAIR catalog numbers assigned to each provenience.

Accessions #43 and 45 were each assigned a single provenience designation which matched the accession title: Accession #43, Iron Works House Crawlspace; Accession #45, Various Sites on Park Property.

Collections Processing and Storage

Prior to cataloging, some of the Accession #13 materials required cleaning. These were washed or, in the case of organic materials or metal, brushed. The artifacts were then sorted by provenience and compared to the inventories prepared by Milner to determine how much of the collection was missing. The data from this comparison will be presented in a later section of this report.

The ACMP cataloging process began with the sorting of artifacts by material type within each provenience. These categories were further broken down into lots according to the ACMP artifact classes discussed in the following section. Each lot was assigned a catalog number, and the artifacts were placed into a resealable polyethylene bag with an acid-free tag noting the site (SAIR Ironmaster's House), the accession number (13), and the catalog number for that lot. Polyethylene bags were used because they meet object conservation standards and because they are durable and transparent for easy viewing. Four sizes of bags were used: four, six, eight, and twelve inches square. These were used to bag the artifacts hierarchically according to the ACMP categories for each provenience. Ideally, the artifacts from one provenience fit into a single 12-inch bag, but often the number of artifacts required more than one 12-inch bag per provenience.

After bagging, the artifacts were placed in acid-free Hollinger storage boxes in catalog number and provenience order (Appendix 2). Within each provenience, the bags were organized according to the order of the artifact classes on the ACMP flow charts (Appendix 4). Sometimes it was necessary to insert a catalog number out of sequence, but the provenience order was maintained. Organic materials were boxed separately to allow for separate storage in a climate-controlled area. Each box was then labelled with the following information: the Park acronym (SAIR), the accession number, the site name, the box number, the catalog numbers stored in that box, and whether the contents were organic or inorganic materials (Figure 4). The box numbers correspond to the box numbers recorded on the catalog cards.

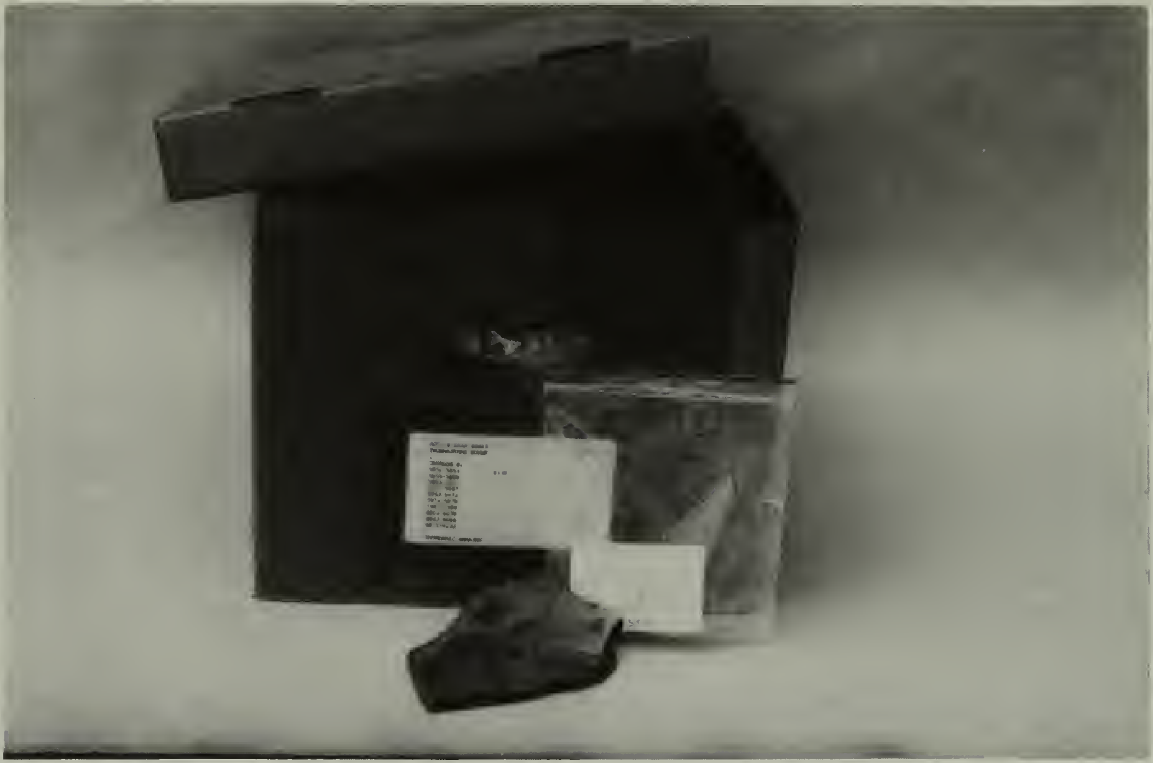


Figure 4. Photograph showing an ACMP storage box and bag.

There were 32 boxes for the Accession #13, #43, and #45 artifacts, including 10 small Hollinger boxes for organic materials, and 1 small and 21 large boxes for inorganic artifacts.

The 57 items which had been previously cataloged were recataloged using the ACMP system. Those which were on exhibit (Catalog # SAIR 3424, 3429-3430, 3435-3438, 3474-3475) remain in the museum exhibit cases at SAIR. The remaining objects were bagged by ACMP methods, but were not boxed with the rest of the Accession #13 materials. These will be stored in chip board boxes on metal trays in Museum Storage Cabinet #13-1 at SAIR.

The ACMP Classification System

Design and Format: The classification system used for SAIR evolved from that used during the ACMP for MIMA (Towle and MacMahon 1987:Chapter 3). However, certain changes were made for the ACMP at SAIR due to the requirements of the NPS Museum Handbook for cataloging archeological collections (NPS 1984). In addition, the vessel glass classifications were changed to accommodate recent research findings (Appendix 3).

Appendix 3 provides definitions for the ACMP artifact categories. Although many of the categories are the same as those used for previous ACMPs, they were structured in a somewhat different hierarchical classification system to meet the Museum Handbook cataloging standards. The Handbook calls for the classification of archeological artifacts by whether they are historic or prehistoric, and then by two levels of standardized material types (NPS 1984:E1-2) (Figure 5). Much of the earlier ACMP inventory system was also based on material type and artifact morphology, but a number of the categories were functional. These functional categories have thus been reclassified under each material type, resulting in a mixture of functional and morphological categories which all fall within larger material-based categories. The ACMP cataloging staff followed a "flow chart" in order to determine how each lot of artifacts would be classified according to the new system (Appendix 4).

The format of the flow charts, and thus of the catalog cards and the computerized data base, was standardized to provide consistency and easy computer access. Standard terms were used for object names and the basic description lines, although in some cases additional description was also added. Researchers interested in using the ACMP data base may therefore use the flow charts as a guide to the classification structure, and may access the computerized data base using these categories.

It should be noted that the NPS mandate for collections accountability required that uncataloged collections be cataloged to a minimum level, referred to as "registration level" cataloging. The ACMP classification system went beyond the registration level to include certain categories that also warranted inclusion. However, the ACMP did not complete all of the NPS catalog record fields. Rather, the ACMP system falls somewhere between "registration level" cataloging and "full" cataloging.

Artifact Categories: The ACMP artifact categories were for the most part developed during previous ACMPs. They were designed to provide both adequate inventory information for accountability purposes, and data which is generally considered useful for research purposes. Detailed attribute-based classifications may have been preferable for research purposes, but were neither feasible nor desirable given the purpose and scope of the ACMP. As Hill and Evans have noted,

> since not all attributes can conceivably be considered...the investigator must either select his attributes to suit his specific problems, or decide simply to select those attributes that most of his colleagues have considered important (1972:261).

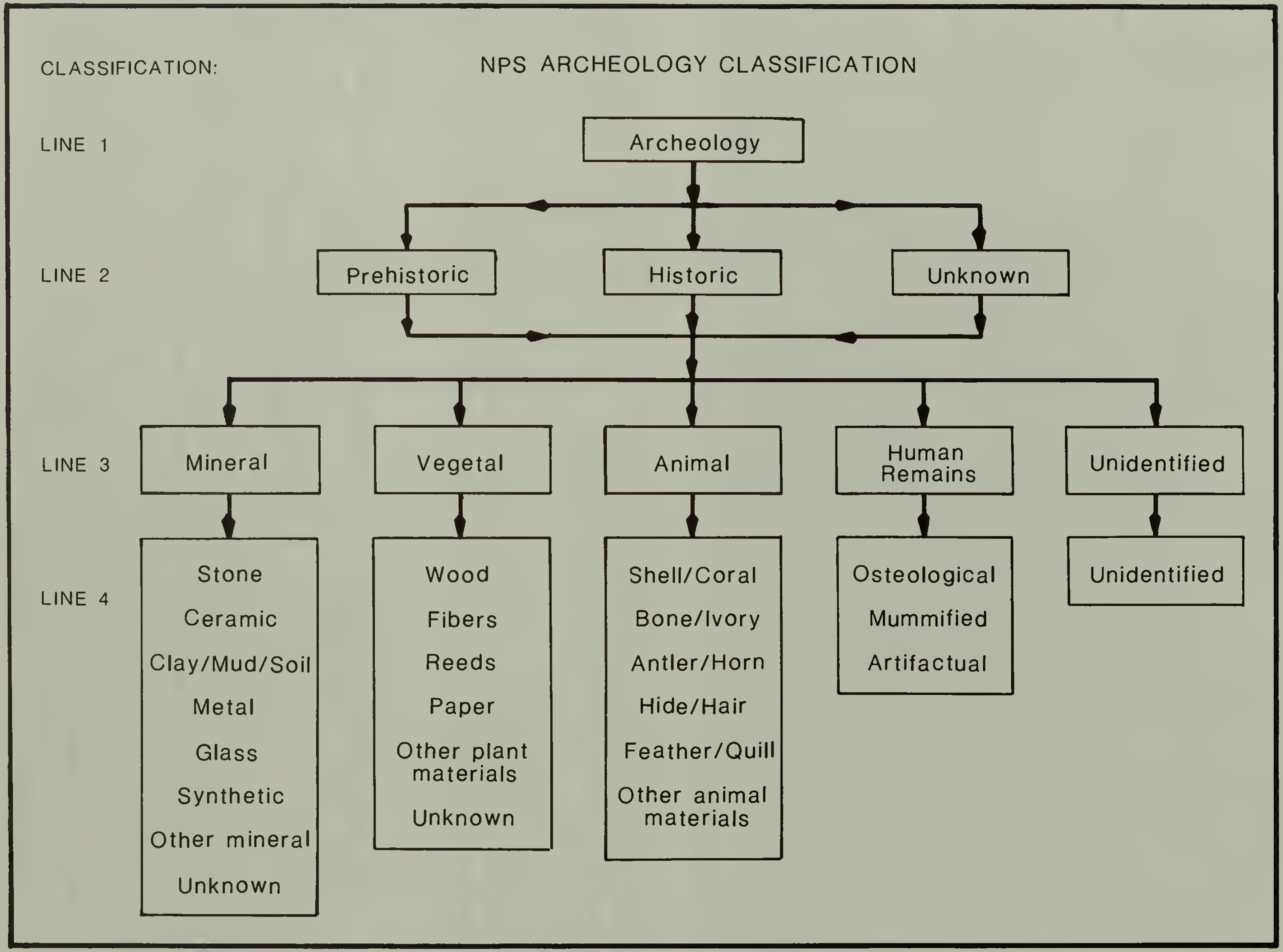


Figure 5. Flowchart of NPS archeological classifications.

Factors which influenced the choice of categories included:

1) artifact typologies which were generally agreed upon by historical archeologists, particularly ceramic categories;
2) artifact categories used during previous ACMPs, to enable interpark comparisons;
3) summary functional categories for artifacts similar in material and function but typically few in number(Synenki and Charles 1984:28).

The resulting artifact categories were variously based on material composition, manufacturing technique, morphological characteristics, or functional attributes. Thus classification varied according to what were believed to be the most useful analytical attributes of the artifacts.

Historic vessel ceramics, for example, were classified according to material and manufacture type, as well as vessel fragment morphology. This was presumed to be most useful for research purposes as it identified ware type and thus, when known, the associated country of origin and date of manufacture. Ceramic tobacco pipes and other ceramic objects were classified separately in functional categories which were deemed to be more analytically useful. Glass artifacts were approached similarly, with bottle and drinking vessel glass identified by manufacturing technique and morphology, while other glass items were incorporated into separate functional categories (e.g., bottle closures, lighting fixtures, etc.).

The ACMP hoped that this combination of attribute-based and functional categories would provide researchers with a variety of analytical options. For example, certain chronological research questions could be addressed through the analysis of diagnostic artifact types, such as historic vessel ceramics, bottle glass, or nails. The ACMP based these classifications upon definitions generally accepted in the archeological literature. Alternatively, questions involving intersite activities or feature function might benefit from the analysis of functional artifact categories. Further definition of the specific ACMP artifact categories is provided in Appendix 3.

At times, the division of artifacts into material-based and function-based categories made classification difficult. Functional categories were often broad enough that the placement of certain items could be ambiguous. The ACMP tried to maintain consistency in classification, and Appendix 5 provides a listing of the categories assigned to most miscellaneous items.

Summary: The ACMP classification system was designed to meet multiple project goals. These goals included the cataloging of the collections by established NPS classification standards, but went beyond this to accommodate additional curatorial and research needs. Any classification system is arbitrary in that it reflects the goals of the project at hand. Typically, a classification system will vary depending upon whether it is designed for collections management or for research purposes, and it will vary further according to a specific project's research goals (Chenhall 1975:13-16; Jones and Sullivan 1985:3; Hill and Evans 1972:245, 252). No single system is more correct than any other, and all have their shortcomings, including that used by the ACMP. It was not possible to design a classification system that would meet all possible research or management needs. In addition, certain procedures will become obsolete through time as new standards evolve and as further research expands our knowledge of material culture. Nonetheless, the ACMP data base for SAIR should serve as a useful tool for collections management, and as a solid starting point for more extensive research projects.

The Automated National Catalog System (ANCS) and SAIR Data Base

The Automated National Catalog System (ANCS) is a computerized cataloging program which was developed by the NPS Curatorial Services in Washington, D.C. (NPS 1987). It was first released in the spring of 1987, and is intended to be used in conjunction with the NPS Museum Handbook (NPS 1984) for the cataloging of all NPS collections. ANCS is a menu-driven system which was written using dBASE III Plus software (NPS 1987:v). It allows for the printing of NPS catalog cards (form 10-254, Rev. 7/84), and also creates data base files which can then be manipulated in dBASE III Plus for additional analysis purposes.

The ACMP completed a total of 4443 catalog cards for the SAIR collections. The catalog numbers used, including the Accession #13 prehistoric materials which were recataloged, were as follows:

Accession #	Catalog #s
13	SAIR 5100-9423, SAIR 9481-9485
13 (recataloged)	SAIR 3424-3476, SAIR 4843-4846
43	SAIR 9424-9469
45	SAIR 9470-9480

The bulk of the catalog numbers were assigned to the Accession #13 collection. Catalog numbers SAIR 9424-9469 were used for the Accession #43 materials, and numbers SAIR 9470-9480 for Accession #45. The ACMP printed all catalog cards and returned them to the Park in January of 1988.

All of the materials were cataloged under the ANCS Archeology classification, except for catalog numbers SAIR 9481-9485, which were classified under History. These five records were used for the original documentation associated with the Accession #13 collection (Table 1).

The SAIR data base was stored in two files in ANCS format. These files, SAUGUS1.DBF and SAUGUS2.DBF, were archived onto floppy disks and will be returned to the Park when they have a computer which runs ANCS, along with instructions on how to unarchive the files and use them in ANCS. Additional information about the actual contents of the data base may be found in the Collection Summary section of this report, as well as Appendices 3 and 5.

Cataloging Associated Collection Documentation

Field records and other associated documentation are a vital part of any archeological collection, and the ACMP attempts to locate such documents whenever possible. The NPS Museum Handbook recommends that field-generated records be cataloged within the accession as a single "organic collection," and stored in the accession or catalog folder. These records are cataloged under "History" classification as an "Archival/Manuscript Collection" (NPS 1984:D-18-20).

The ACMP located a variety of original documents for the Accession #13 collection, and divided them into five catalog lots (Table 1). The five lots represented distinct types of documentation or "intellectual units," allowing for easier research and curatorial access, as well as different storage locations. It is recommended, for example, that photographic negatives be stored in a more climate-controlled setting than the paper records. In addition, although much of the original field documentation is of standard letter size and can be stored in a folder, certain oversize documents require a separate storage location. Oversize field maps, for example, are best stored in a map case or hanging map files. Table 1 lists the available Accession #13 documentation by catalog lot.

ACMP Map Construction

The maps and diagrams used in this report were taken or compiled from various sources concerning Saugus Iron Works National Historic Site. These included the following:

1. Moran's original field maps, sketches, and notes (SAIR catalog #s 9481, 9483);
2. Moran's preliminary report of test excavations (1976a);
3. Milner's report on Moran's excavations (1978);

4. Engineering drawings for the Park as well as various other technical maps;
5. Carroll's completion report (1985).

Unfortunately, the field maps only existed for a limited number of units and even though field note sketches were more abundant, they were usually not to scale and often schematic. In certain situations, a map did not even exist. The primary problem in constructing ACMP maps was the accuracy of the source maps, as different sources were frequently inconsistent in their presentation of the excavation unit or feature. A number of Milner's maps were inconsistent with the original field notes, sometimes presenting information for which no original source could be identified. However, several of Milner's maps were accurate and have been reproduced as they originally appeared in that report (1978). Moran's maps on the other hand, though largely correct, often left out detailed information from the field notes and maps (Moran 1976a, 1976c). For these reasons, all profile maps appearing in this report have been redrafted to present as much information as possible from the original field sources. The ACMP has also created several composite maps to reflect information that was presented neither in Milner's nor Moran's reports, and these will be discussed separately later in this section.

One of the most difficult situations was when the field notes and maps themselves presented conflicting data. This was probably due in part to the lack of consistency in notation in the field notes. Problems such as conflicting unit grid coordinates, or even a lack thereof, sometimes made locating or orienting excavation units difficult. In certain cases, references to particular utilities were ambiguous. For instance, the location of the Orangeburg pipe in the foundation trench (Figure 14, Feature 1) was not well documented. Although there were at least three references to the pipe in the notes, it still was not possible to discern its exact location and extent. Another common problem was the total lack or inconsistent use of scales in the field notes, which led to questionable graphic representations of the excavation units (e.g., the plan of the lean-to foundation). Fortunately in many cases, much of the material also appeared in the more carefully drafted field maps, and thus problems could be resolved. Many of the above difficulties were significant in the compilation of three particular maps which merit individual discussion.

ACMP Site Plan (Figure 8): The ACMP Site Plan is a revised version of the site plans presented in both Moran's and Milner's reports (Figures 6 and 7). These revisions were an attempt to resolve conflicting information about the location and dimension of excavation units. However, all conflicts could not be resolved. The excavators assigned the southeast corner of each excavation unit as the unit datum, but in practice this was not always the case and different grid coordinates were often given for the same excavation unit. The ACMP assumed that the original field maps and notes were the most accurate source of information, with the artifact proveniences providing additional data. Occasionally the field notes would mention that grid designations were incorrect for certain excavation units. This occurred particularly in Sector 2, and the units in Sectors 3-5 were also questionable. The ACMP could not resolve these issues. It should be cautioned that excavation units in certain portions of the site plan may be incorrectly located. They may be off by only a few feet north-south in Sector 2, but Sectors 3-5 are more problematic. Those units which were most questionable were indicated on the site plan.

ACMP Composite Feature Map (Figure 14): The purpose of constructing the Composite Feature Map was to present a complete picture of the archeological features uncovered during the Moran excavations on the SAIR grounds. The base map was derived from an original field site map, and the plan views of features were drawn from the original field maps and notes. As mentioned above, due to the inconsistency in some of the field notes, there were many conflicting pieces of information which required resolution. Primary examples included soil anomaly locations and dimensions, grid coordinates, and the location of utility lines and trenches. The results of the analysis of the existing data are reflected in the Feature Map. The lean-to foundation trench was particularly difficult since not only were its grid coordinates conflicting, but none of the locations matched the foundation's proximity with the house, as seen in an excavation photograph. In this case, the photograph seemed the best source and so in resolution, the foundation was aligned with the house as in the photo (Figures 28 and 29). Although most of the features uncovered were historical in nature, there were some prehistoric pits uncovered and these features are also keyed and identified on the Composite Feature Map.

Utilities and Disturbances Map (Figure 11): This map was constructed in order to account for any known non-archeological disturbances on the Park grounds that may be important in future archeological projects at SAIR. Compilation entailed studying numerous engineering maps and Park technical maps in order to determine the location of any utility lines, buildings and streets no longer in existence, present buildings and streets, etc., which were then superimposed onto a 1971 copy of the SAIR Utilities and Existing Conditions map (NARO map file #41002) used as a base. The key on Figure 11 identifies each utility line, including those of questionable location and for which confirmation was not possible. It should also be pointed out that many utility lines were discovered during excavation, for which no additional record was found. These have been indicated in the key as well.

Collection Summary

Archeological collections have several important components. The most visible component is the collection of artifacts recovered during excavation. In order to fully understand and utilize the artifacts, other vital components must be present. These include a variety of original records: daily field notes and forms, field maps and profiles, photographs, artifact inventories, and other associated data.

The focus of the ACMP was on the artifact collections themselves, and total artifact counts were derived for each accession. However, in the process of cataloging the SAIR archeological collections, the ACMP was able to define certain issues for each collection which affect their integrity and their potential for further research use. This information will be summarized below by accession number. A discussion of some of the problems with the Robbins' collection (Accession #1) will also be provided.

The collections cataloged by the ACMP and their total artifact counts are as follows. The weights represent totals for artifact categories which were weighed rather than counted (e.g., slag, shell specimen, etc.; see Appendix 6). The Accession #13 collection contained, in addition to excavated artifacts, five archival catalog lots for the associated documentation (e.g., the original field notes). These five lots accounted for a total of 103 archival items.

Accession #	Total Count	Total Weights
13	15,416	3644.6 g
43	194	97.2 g
45	18	0.0 g
Total Artifacts Cataloged	15,628	3741.8 g
13 (Archival)	103	
Total Items Cataloged	15,731	

Accession #13, The Ironmaster's House Excavation Collection

The components of the Accession #13 collection included a large number of artifacts and various forms of collection documentation. Certain problem areas were identified and will be addressed below, as they affect the overall integrity of the collection.

Artifact Collection Contents: The ACMP inventoried a total of 15,416 artifacts and an additional 3644.6 grams of weighed materials in the Accession #13 collection. Historic materials constituted the majority of the collection, although there was also a sizeable prehistoric component. The general contents of the collection will be summarized below. A more detailed inventory has been included as Appendix 6 of this report, and additional discussion is provided in context of the artifact definitions in Appendix 3.

The 13,146 historic artifacts included a wide range of materials common to domestic sites which have been occupied for a long period. Historic ceramics (6299 sherds) accounted for 41 percent of these, forming by far the largest subassemblage. Nails formed another large subassemblage (2297 nails), while the other artifact classes contained smaller percentages of materials, as detailed in Appendix 6. Further analysis of these artifacts will be offered in the interpretation section of this report.

The prehistoric materials included both lithic and ceramic artifacts. There were 2265 chipped stone artifacts and 5 ceramic sherds. The chipped stone items included manufacture flakes (2195), shatter/block (11), cores (2), unifaces (6), bifaces (39), and projectile points (12). These materials will also be further discussed in the interpretation section of this report.

Collection Documentation: Various forms of documentation exist for the Accession #13 collection. Some of the documentation had been stored in the SAIR accession folder since the completion of Milner's report, and Milner forwarded additional materials during the ACMP. These sources included original daily field notes, field plans and profiles, resistivity data, photographs, and Milner's original artifact inventory, all of which are listed in Table 1. The ACMP cataloged this documentation as catalog numbers SAIR 9481-9485.

These materials probably represent the majority of the original documentation for Moran's 1976 excavation. The few instances of missing documentation included color photographs which were noted in the original field notes, and computer-generated resistivity maps discussed in both Moran's and Milner's reports. The field plans and profiles available did not represent all excavation units, and it may be that additional plans and profiles were missing. Alternatively, they may never have been created. It was also apparent that detailed excavation unit records were not maintained, and the daily field notes provided only fragmentary information on the progression and results of excavation. The record of the excavation is thus incomplete, partially due to missing records and partially due to the lack of adequate record-keeping in the field.

Provenience Problems: A lack of adequate provenience data was the most significant complication with the Accession #13 collection. This problem seemed to have originated with inconsistent provenience designations on the original field bags, where the artifacts were placed as they were recovered and then stored until Milner's inventory. The inconsistencies were further confused by the grid system used. Although the five sectors of the site were interconnected, the grid changed in direction and coordinates for each sector depending upon the location of subsidiary datum or transit points (T.P. 1-4, Stake A, and Control Bound C) (Figure 6).

Milner was frustrated by an attempt to sort out these provenience problems:

> the subdivision of the site into five sectors...made the analysis of excavation records and artifacts unnecessarily cumbersome and confusing. There was not, for example, a close correlation between the excavation plan prepared in the field and that prepared on the basis of unit designations recorded on artifact bags. Likewise, the daily record of excavation notes contains occasional descriptions and observations which cannot be definitely assigned to a particular unit (Milner 1978:12).

The ACMP identified the same problems encountered by Milner. In addition, another level of confusion was added by the discrepancies between Milner's site plan (Figure 6) and the site plan which appeared in Moran's preliminary report (Figure 7). The latter was drawn at a very small scale and thus the discrepancies were difficult to pinpoint.

There were many sources of provenience data and each differed to a certain degree from the others: Milner's site plan; Moran's site plan; two versions of a site plan in the original field records; a separate "corrected" map of the excavation units in the area of the possible waterway, stored with the original field records; a number of original excavation unit plans indicating locations and dimensions; proveniences noted in Moran's field notes; and proveniences represented in the artifact collection. It was apparent in comparing the sources that Milner attempted to add excavation units to the map when there were artifacts from such proveniences. Milner noted the confusion over the map in Sectors 3, 4, and 5 as follows:

> Considerable confusion exists in the exact location of several of these units - field note designations, artifact bag designations, and the field plan do not agree one with the other. Unit locations within Sectors 4 and 5, especially, should be viewed...with some suspicion (Milner 1978:18-19).

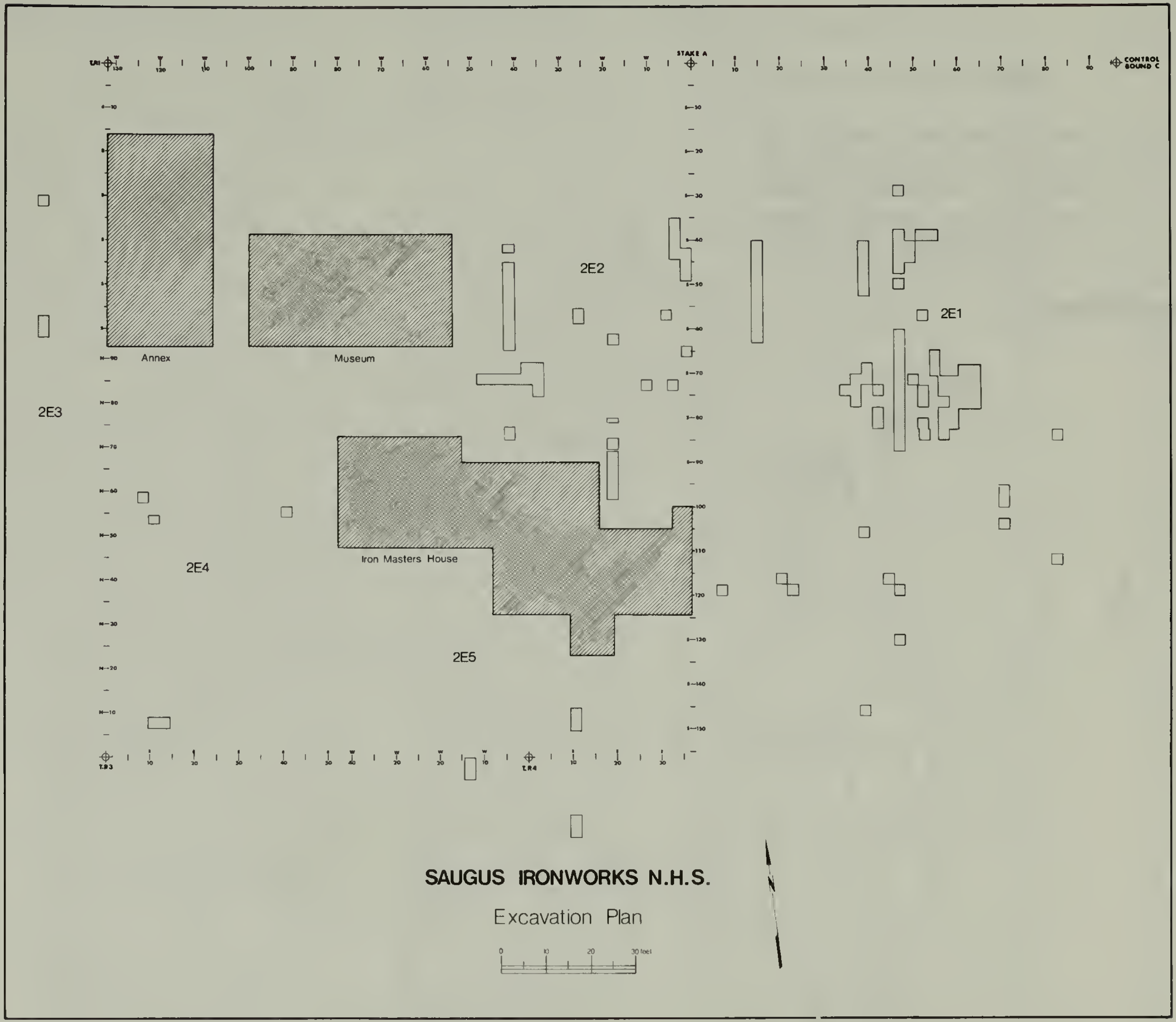


Figure 6. Milner's site plan (1978:Figure 3-9).

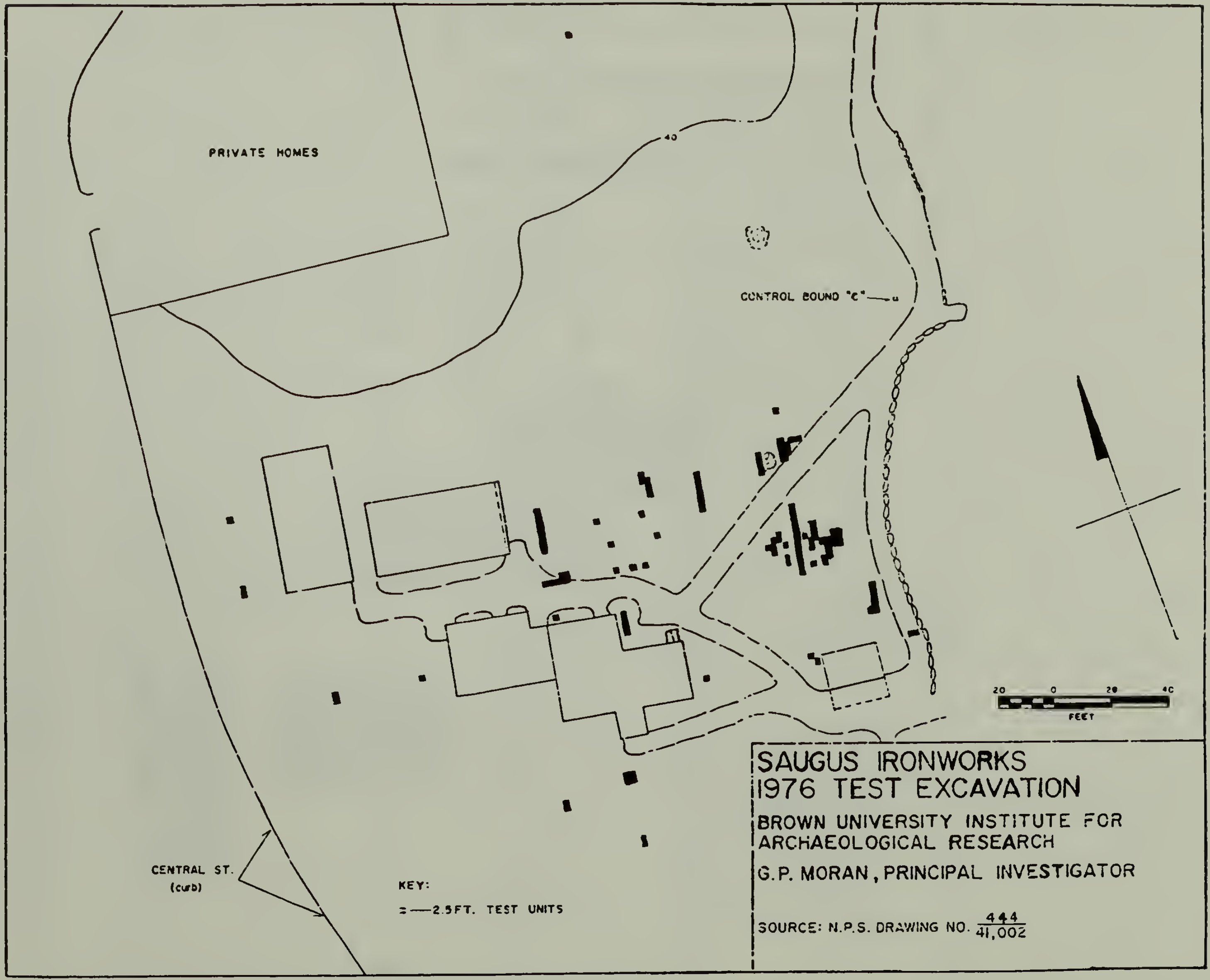

PRIVATE HOMES
40
CONTROL BOUND "C"
20 0 20 40
FEET
SAUGUS IRONWORKS
1976 TEST EXCAVATION
BROWN UNIVERSITY INSTITUTE FOR ARCHAEOLOGICAL RESEARCH
G.P. MORAN, PRINCIPAL INVESTIGATOR
SOURCE: N.P.S. DRAWING NO. 444/41,002
CENTRAL ST. (curb)
KEY:
= 2.5FT. TEST UNITS

Figure 7. Moran's site plan (1976a:Figure 1).

It was difficult to determine which of the sources of provenience data were more correct. The ACMP attempted to refine the site plan (see Map Construction section), but it was not possible to eliminate the provenience problems. Units which were most questionable were noted on the site plan (Figure 8), and these should be regarded as problematic for site analysis. The units used by the ACMP for analysis purposes will be discussed later in this report.

Missing Artifacts: The ACMP compared the artifacts present at the time of our inventory to the artifact counts recorded on Milner's inventory. This resulted in a count of missing artifacts. Milner's inventory was an itemized listing of artifacts by provenience. The artifact categories used were largely consistent from one provenience to the next, but counts were not always noted or were not recorded in direct correlation with the specific artifact categories. This sometimes frustrated a direct comparison with the artifacts present during the ACMP, and the number of missing artifacts could not always be determined. The ACMP missing artifact count represents those artifacts which could be directly determined as missing by comparison with the Milner inventory. The collection was thus missing at least that number of artifacts, and possibly more.

Table 2 presents the missing artifact data in summary form. A total of 959 artifacts, or 7.6% of the collection as it was originally inventoried by Milner, were missing. Additional artifacts were noted but were not counted on the original inventory. The ACMP count for these previously uncounted materials was 129 artifacts, plus some which the ACMP weighed (Table 1). Artifacts which may have been counted in the original inventory but for which we were missing the inventory sheets totalled 158 items. Only 15 unprovenienced artifacts were found.

The most surprising finding was that there were 2,883 extra provenienced artifacts at the time of the ACMP inventory. While some breakage is expected to occur through time, this figure was a little high to be explained solely by breakage. Certain artifact classes had particularly high counts of extra artifacts (Table 2). For example, both red and white earthenwares had large numbers of extra artifacts, as did bone and shell. Glass and nails also had high "extra" counts, though these might be explained by breakage and corrosion. These artifacts did not account for missing artifacts, as they were from separate proveniences. The high count of extra artifacts may indicate that, in addition to breakage and corrosion, some errors were made in the original inventory counts.

For the most part, the missing artifacts were small numbers of items from a variety of artifact classes, which seemed to indicate random loss. However, several categories suffered more

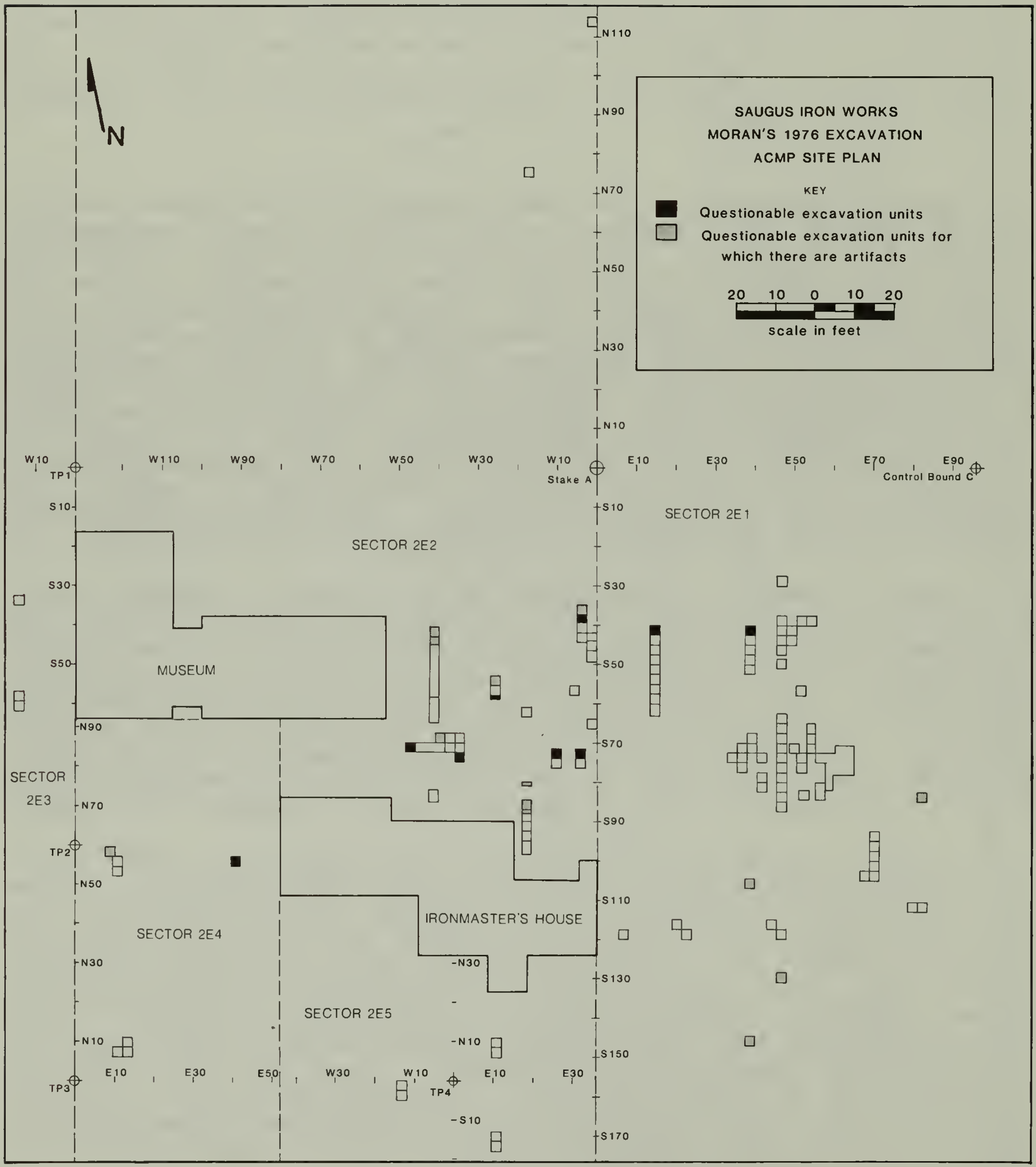


Figure 8. ACMP revised site plan, identifying questionable excavation units.

Table 2

Accession #13 Missing Artifacts*

Artifact Category	Milner's Counts	Missing Artifacts	Extra Artifacts**	% missing
Ceramic:				
Red Earthenware	1,288	47	228	
White Earthenware	3,493	21	621	
Yellow or Brown-glazed Buff Earthenware	244	5	38	
Porcelain	133	33	23	
Stoneware	159	13	25	
Misc.	29	2	47	
Subtotal	5,346	221	982	4.1
Clay Pipe Fragments	271	22	18	8.1
Glass:				
Flat	498	72	53	
Other	1,087	26	391	
Subtotal	1,585	98	444	6.2
Metal:				
Nails	1,881	78	581	
Coins	9	1	0	
Other Hardware	262	37	59	
Unidentified Metal Objects	265	103	407	
Subtotal	2,417	219	1,047	9.1
Brick/Mortar/Stone	17	4	16	23.5
Slag & Coal	31	2	8	6.4
Organics:Bone/Shell/Misc.	822	21	341	2.6
Prehistoric Lithics	2,088	360	5	17.3
Prehistoric Ceramics	8	4	1	50.0
Misc. Other	87	8	21	9.2
Grand Total	12,672***	959	2,883	7.6

* Using originally designated classifications when possible.
** In different proveniences from those with missing artifacts.
*** In addition, there were 158 artifacts for which the Milner iventory sheets were missing, 129 artifacts which were noted on the inventory sheets but not counted, materials which were not counted by Milner, and 15 unprovenienced artifacts.

Table 3

Accession #13
Notable Missing Artifacts

Provenience	Item
2E1, E38/S75	1 spoon
2E1, E48/S42.5	1 whole brick, 4x8x2"
2E1, E48/S45	1 bone spool or button
2E1, E53/S58	1 possible teapot lid, white earthenware
2E2, W2.5/S37.5, Lot 2	1 iron pot (6" x 3.5", handle 6.25", with melted lead (?) adhering to bottom; stored separately)
2E2, W36-46/S70-72.5	1 bone-handled knife (bagged separately)
2E2, W36-38.5/S67.5	1 obsidian flake, in smaller bag
2E2, W36-38.5/S67.5-70	Entire bag of materials from Lot 3, Feat 1, 26", including 12 lithics, 3 misc rocks, 3 bones
2E2, W40/S58.5-65	1 lithic blank

significant loss. The percentages for each class are noted in Table 2. A particularly striking case was the prehistoric lithics category, which was missing 360 artifacts (17.2%). An entire bag containing 220 lithics was missing from provenience SEC 2E2 W16.5/S87.5-95, accounting for much of the total missing lithics.

Additional noteworthy items which were missing at the time of the ACMP inventory are noted in Table 3. Three of these (the iron pot, the bone-handled knife, and the obsidian flake) had been noted as stored or bagged separately on Milner's inventory sheets. Presumably these were somehow separated from the rest of the collection and were not returned to the Park. The ACMP made notes concerning the missing artifacts on a xerox of the inventory, identifying the specific instances of loss. These will be retained as part of the ACMP documentation.

In addition to the missing artifacts noted above, all of the artifacts recovered during Moran's initial auger survey were missing. These artifacts were never inventoried by Milner, but were plotted on a map by Moran (Moran 1976a:3). This map was redrafted and reproduced in Milner's report (1978:Figure 3-1). Daniel Roberts of Milner Associates did not recall that they had ever seen these artifacts, and noted that they had probably just transferred the artifact data from Moran's map to theirs. No auger hole artifacts could be located during a search through Milner's files (Daniel Roberts, personal communication 1987). These artifacts were probably missing by the time of Milner's inventory.

A third form of loss was discovered while comparing the artifacts to Milner's inventory. Apparently a decision was made during the Milner inventory to discard certain artifact classes from the collection. This did not seem to have been a systematic discard, for at times a sample was retained but other times the entire class was discarded. The most common materials discarded were brick, mortar, slag and other iron refuse, and some shell, bone, and unidentified metal objects (abbreviated by Milner as UMOs). These discards are enumerated in Table 4.

The combination of the above forms of loss (missing artifacts from the auger survey, random 7.6% loss from the inventoried collection, and discards which were made during Milner's inventory) means that the present collection is not representative of the artifacts which were originally recovered. Certain artifact classes essentially retain their original integrity, while others are no longer intact for research purposes. Researchers should be especially cautioned against using brick, mortar, or slag for any kind of quantitative analysis. The analysis of other artifact classes should be done in perspective of the missing artifact data presented in this section.

Artifact Recovery Techniques: It should also be noted that the Accession 13 collection may not contain all of the artifacts which were actually excavated. Moran's report did not discuss the specifics of field methodology. However, one former crew member noted that because the focus of the excavation was on locating Iron Works period features, prehistoric remains were not systematically collected (Leonard Loparto, personal communication 1987). This further biases the collection for purposes of quantitative analysis. Nonetheless, other types of analysis are certainly possible. Recommendations regarding the specific research potential of the collection will be presented later in this report.

Artifact Classification Differences: There were a number of differences between the artifact categories used during Milner's original inventory and those used during the ACMP. The most common differences, although usually minor, occurred in the classification of historic ceramics. In some cases, the ACMP used more specific categories, such as the identification of creamware, pearlware, and whiteware, which Milner typically lumped into a single white earthenware category. In other cases, the ACMP assigned specific ware type names to sherds which were

Table 4

Accession #13: Milner Discards*

Provenience	Artifacts Discarded
Sector 2E1:	
E16/S45-53, 12-15"	Rock frags, Mortar, Slag, Brick
E16/S45-53, Lot 1	22 UMO's
E24/S120, Lot 1 Herb Garden	Brick frags, other unidentified "garbage"
E38/S75-70, Lot II F1, 11-22"	Mortar lumps
E38/S70-77 1/2, F2, Lot 1	2 brick frags
E38/S70-77 1/2, F2, Lot 2, 48"	2 brick frags; slag lump
E38/S75-72 1/2, F1, 13"+	Brick chunks + slag
E38/S77 1/2, Lot2, 18"	Brick frag
E40/S42.5-52.5, F1	Slag (saved 1 frag)
E40/S42.5-52.5, F2 Util. Tr.	1 slag frag, 1 pc. charcoal
E48/S30, Lot 3	1 frag iron slag
E48/S42.5, F1, Lot 2	Brick frags - 9
E48/S42.5, F1, Lot 3	1 partial handmade brick
E48/S45, F1, L-2	1 5x5" slag lump, 5 brick frags
E48/S45, F1, L-4	1 pc. mortar
E48/S45, F1, Floor	Floor Sample Iron Refuse - iron; mostly pitched
E48/S45, F1	4"x2"x? brick frag w/glaze, mortar
E48/S47.5, L-1	Slag
E48/S77.5, L1, F1 10-26" below rock + brick level	Lots of pieces of mortar + brick
E48/S85, L2	Brick frag
E50.5/S42.5/S45, L-1	3 unglazed molded bricks 2"x4"x?
E50.5/S42.5/S45, L2 F1	2 glazed bricks fused together 2"x4"x? 1 2x4x? unglazed w/mortar-DISC
E50.5/S42.5/S45, F1, L3	1 unglazed w/mortar 2"x3 1/2"x? 1 unglazed w/mortar 2x3.5x8.5"
Sector 2E2:	
W0/S44, Lot2 shell	Brick
W9/S74-76.5, Lot 1	3 partial bricks, 2 pc. slate
W16.5/S95-87, Lot 2	Slag lump
W16.5/S95, Lot 1	Shell frags - 3
W33.5-36/S70-67.5, F1, 23"	20 brick frags; 35 shell frags
S67.5-70/W36-38.5, F1, 26", Lot 3, 12-18"	3 bone frags
W40/S85-82	modern drainpipe
W13/S32.5-35	1 large stone w/tar stuck on it
Sector 2E4:	
E14.5/N6, Lot 1	3 lumps glass slag
E14.5/N6, Lot 2	2 brick frags
W12/S5, Lot 2	3 brick frags

* as noted on Milner's inventory sheets

variously described by Milner, including the classification of Rockingham/Bennington sherds which Milner had often described as buff brown-glazed earthenware, or Yelloware which had been described as yellow-glazed buff earthenware. The more specific ACMP classifications should provide researchers with a more consistent and quantifiable data base, and with additional chronologically diagnostic information.

The most pronounced difference between ACMP and Milner classification systems was in the identification of lithic raw material types. Milner consulted with a geologist at Bryn Mawr College in Pennsylvania for assistance in raw material identification (Milner 1978:1). The resulting classification did not always correspond to the classification systems used by most New England archeologists. The ACMP therefore reclassified these materials using categories which are more commonly used for New England raw material types. The primary difference was in the classification of felsites, which Milner variously identified as basalt, porphyritic basalt, rhyolite, or chert. Quartzite and Saugus Jasper were also sometimes identified as chert. The discussion of lithic material types will therefore differ in this report from that presented in Milner (1978:30-47), as will the total counts for each category.

Accession #43, Iron Works House Crawlspace

There was a "List of Objects" attached to the Accession Receiving Report for this collection. This list enumerated the collection contents and thus served as an original inventory. Of the 201 artifacts which were listed, only six were missing.

The artifacts were recovered during the enlarging and deepening of the crawlspace under the Iron Works House ell addition. This was performed by members of the NARO preservation team. No further provenience information was available. The areas excavated were delineated in a figure which was included in the project Completion Report (Carroll 1985) (Figure 9), thus providing general horizontal provenience for the artifacts. The vertical provenience data remains unknown.

Accession #43 contained a total of 194 artifacts and 97.2 grams of weighed materials, and included a wide variety of artifact types. For more information on the content of the collection, reference may be made to the artifact inventory included as Appendix 6 of this report. These objects could be used for certain research purposes, such as a study of the disposal of artifacts in crawlspaces, an activity that has been noted at other historic sites in New England.

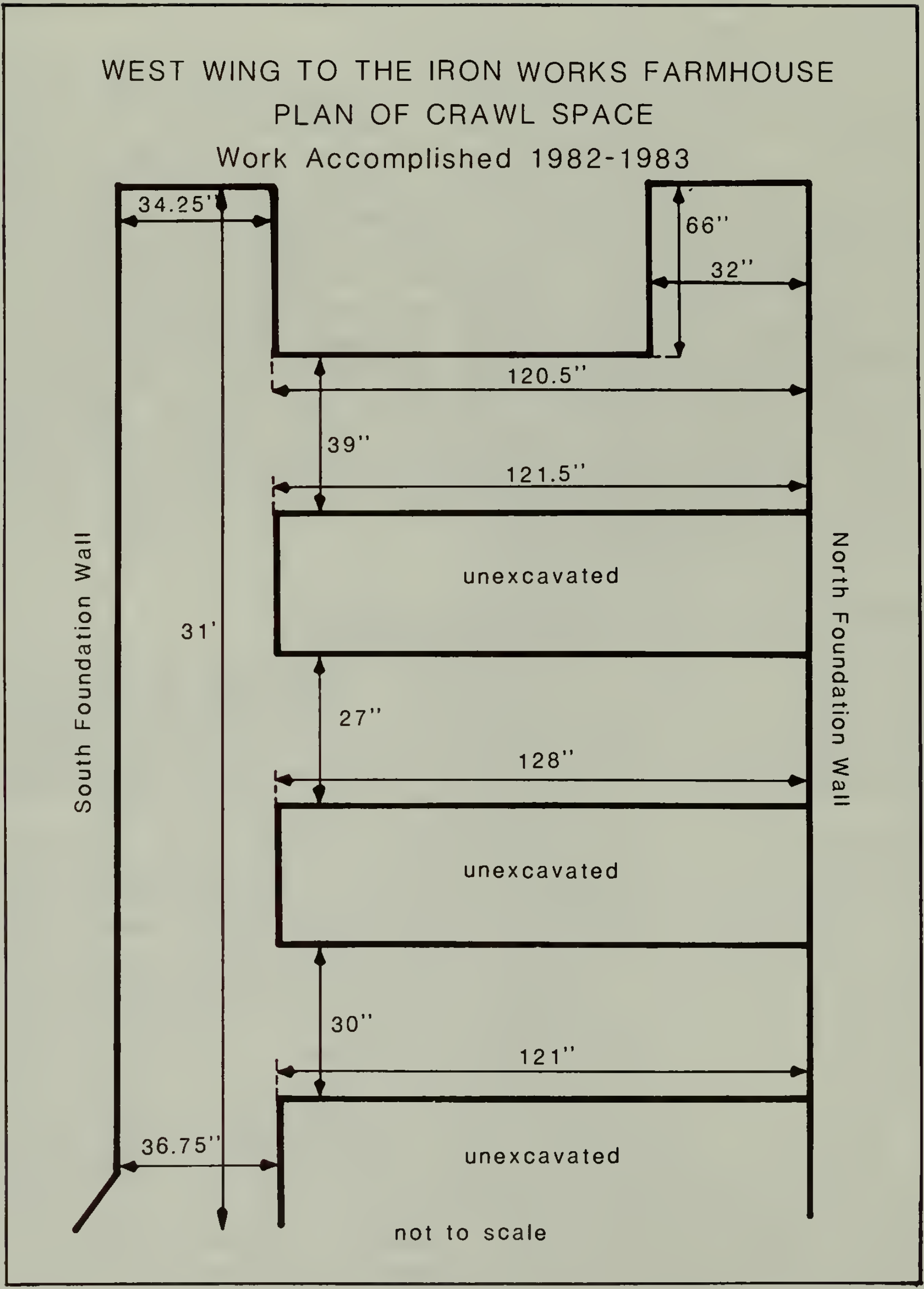


Figure 9. Areas excavated under the Iron Works House ell during renovations (from Carroll 1985).

Accession #45, Various Places on Park Property

The Accession #45 materials were also enumerated on an object list attached to the Accession Receiving Report. Comparison with this list showed that only one object, an iron fragment, was missing from the collection. There was a total of 18 items in the collection. These included an iron pot leg, a pair of iron pliers, and a variety of other artifacts (Appendix 6). A large piece of cast iron, possibly pig iron, was cataloged by Curator Kayser in March of 1986 and was put on exhibit (SAIR 4935). The ACMP did not recatalog this piece, as it had been cataloged on the current NPS card (Form 10-254, rev. 7/84).

There was no provenience data for any of the pieces in this collection other than that they were found in various places on Park property. They were collected by Youth Conservation Corps seasonal employees during a summer project. The research potential for this collection is thus limited, although the iron in particular could be used for comparative purposes in a study of the iron objects from the site.

Accession #1, Robbins' Iron Works Collection

The Robbins' collection, which is a part of SAIR Accession #1, had been previously cataloged. However, although the ACMP did not catalog this collection, it is an important collection and merits a brief discussion. It contains the only materials from the industrial area of the Park, and with Accession #13, it represents the bulk of the materials recovered during major archeological projects at the Park. These artifacts have never been used by archeologists for research purposes, and would be interesting for various forms of comparative study. They also provide additional data for the Iron Works property as a whole, thus tying into Moran's collection from on top of the bluff near the Ironmaster's House (Accession #13). It is therefore appropriate to summarize in this report some of the data problems which researchers might encounter while using this collection.

Recovery Techniques: The first issue regarding Robbins' collection has to do with the original recovery techniques used during excavation. Robbins worked at the site from 1948 to 1953, but never completed a final report describing the methodology or extent of his excavations. In 1975, Brown wrote a report which synthesized Robbins' notes concerning the areas excavated, but the actual field methods used remain unknown. A short film on Robbins' work which documented certain aspects of his field methodology, including the use of a steam shovel during excavation, can still be viewed at the Park. In addition, Robbins' field notes and a large collection of photographs documenting his work are on file at the Park. However, specific details on overall strategy are lacking. It is highly unlikely that artifacts were systematically collected, given the primary goal of Robbins' work, which was to locate and define the architectural features of the Iron Works. The collection was therefore probably never truly representative of the wealth of historic materials at the site.

Harper's Ferry Project: The integrity of the collection was further compromised during 1972 and 1973 when a project was undertaken to organize, catalog, and conserve Robbins' recoveries. In 1971, John L. Cotter, then the Supervising Archeologist of the NPS Denver Service Center for the Eastern U.S., saw the collection at the Park. He noted that it

> had been stored beneath a small utility building at Saugus, presumably since the excavations....He recommended that the collection be examined, inventoried, and processed to retain representative and useful archeological materials (Cotter 1972:1).

The artifacts were subsequently shipped by truck to the NPS facility in Harper's Ferry, West Virginia. Upon arrival, the collection was found to be in serious disorder, with many types of storage containers in various states of decay and provenience cards scattered inconsistently throughout. The state of the collection was documented in a brief report (Cotter 1972a), which further summarized the contents of the collection and the remainder of its treatment at Harper's Ferry. This treatment included the culling of certain materials:

> Overages of like materials for which quantification could be recorded on the cards in lieu of retaining the examples, were reduced, and about half of the weight and bulk of the collection was discarded. Most of which discards consisted of rock, furnace slag, fragments of uncleaned iron castings, brickbats, and unsalvable and unidentifiable iron objects (Cotter 1972a:2).

The materials were later described as "a great mass of slag and rock and unsalvagable materials [culled] in order to get some order into the collection and prepare the iron objects that were there for treatment" (Cotter 1972b:1).

The provenience data, if available, was noted and assigned a lot number. A few of these lots were described in the report (Cotter 1972a:2-3), but a full inventory was not provided. The inventory procedures were not further described. Time was apparently too short to complete this process for the entire collection, and the report recommended that the same treatment be given to the remainder of the collection (60 kegs of artifacts)

(Cotter 1972a:4). It also recommended that electrolysis be performed to conserve the iron objects. The collection was then transported back to SAIR.

Conservation and Cataloging Project: Shortly after the Harper's Ferry project, a contract was granted to catalog Robbins' collection and conserve the iron objects. A project report was written describing the conservation treatments performed by project director Dennis Piechota (Piechota 1973), the cataloging procedures utilized (Barber 1973a), and the faunal assemblage which was subsequently discarded (Barber 1973b).

This project followed the general process initiated at Harper's Ferry. The report noted, as had Cotter, that "a great portion of the collection is without site context; the majority of it is without positive provenience" (Barber 1973a:2). A "qualitative sampling" was made, with criteria for discard varying by artifact class. All artifacts identified as post-1900 were discarded, as were materials in poor condition and all of the faunal materials following a detailed osteological study (Barber 1973a:3-4). Other artifact categories were sampled, retaining at least one example per lot, except in the case of ceramics where all non-utility wares were saved (Barber 1973a:3). The report described additional criteria used during the discard process, and noted that "approximately one-half, by weight, of the collection" was discarded (Barber 1973a:2). Estimates for the number of artifacts discarded was provided, but no actual inventory was done. The estimated quantities discarded, approximately 3200 total, were as follows:

> ceramics (1000 pieces), glass (200 pieces), brick (25 pieces = 50 lbs.), aboriginal stone (150 pieces), rock (50 pieces = 50 lbs.), slag (300 pieces = 300 lbs.), iron (1000 pieces = 700 lbs.), bones (100 pieces), leather (200 pieces), wood (150 pieces), other materials (25 pieces) (Barber 1973a:4).

The objects which were retained were then cataloged on the old version of NPS catalog cards (Form 10-254, May 1957) and the iron objects were conserved. Both of these procedures were described in the 1973 reports. The historic artifacts were cataloged under "History" rather than "Archeology," which differs from the standards now required by the NPS Museum Handbook (1984). However, because the collection did not qualify as an uncataloged collection, the ACMP did not undertake the recataloging of the materials.

The project was conducted in several stages. A lab was set up in the Mansfield House (near the Ironmaster's House) at SAIR, where the gross sorting and culling was performed. The rest of the collection was then taken to the Peabody Museum at Harvard for the actual cataloging and object conservation (Russell Barber, personal communication 1987). The culled objects were to be held at SAIR for final examination by the NPS (Peabody Museum n.d.). A Park employee who was there at the time reported to Curator Kayser that the culled materials were deposited on the ground outside the Mansfield House (David Kayser, personal communication 1987). Some of the items were collected by Park staff for personal collections, since they were otherwise slated to be discarded (Stephen Carlson, personal communication 1987). The Park subsequently transferred the remaining items to five-gallon buckets, at which point they were deposited in the house. They were later taken to the nearby maintenance shed and then to the carpenter's shop across the river on the east bank (David Kayser, personal communication 1987).

Rather than taking the materials to the dump for disposal as instructed by NPS personnel, the Park blacksmith and another staff member sorted through the buckets and spread the objects on the ground near the carpenter's shop, covering them with leaves and humus in hopes that they would be preserved for future interested parties. Only the fragments of corroded iron were taken to the town dump. The retained objects were put in an area inside the Park's chain link fence, not far from the southeast corner of the carpenter's shop. Curator Kayser reported to the ACMP that these objects erode out of the bank from time to time. He has recently attempted to retrieve some of the discarded material that Park staff collected from outside the Mansfield House, and has accessioned these objects with descriptions of their origin (e.g., Accession #91) (David Kayser, personal communication 1987). The Mansfield House is no longer standing, and the area has been paved for a visitor parking lot.

Summary: The documentation of the discards performed at both Harper's Ferry and Saugus is important as it significantly changed the character of the collection. It is also important to note that the discovery of iron objects near the carpenter's shop would not be unexpected given that many discards were deposited in the area. It is clear that any form of quantitative analysis would not be possible with the Robbins' materials, given the original recovery and provenience problems as well as the later discards. The collection nonetheless retains integrity for other forms of study. In particular, it contains many items directly associated with the operation of the Iron Works and the materials that were produced. Robbins' original field notes are also on file at the Park, as is a large collection of photographs of his work. As the first successful integrated ironworks in the country, the site certainly holds a significant place in the history of the development of early industry in North America. The information presented above should assist researchers in determining the possible courses of study.

Historical Background

The Saugus Iron Works has been the focus of a number of historical studies. Edward N. Hartley's Ironworks on the Saugus (1957) was one of the first [comment on contents]. In 1973, Stephen P. Carlson wrote a more concise history intended for use by Park staff (1973:iv), followed shortly by Abbott Lowell Cummings' lengthy report on the history of the ownership of the Ironworks Farm (1975). In the same year, Mary C. Beaudry wrote a brief summary of certain aspects of the documentary data which held implications for archeological research (1975). The next historical study was John Albright's concise Historical Data section of the Historic Structures Report for the Ironmaster's House, which concentrated specifically on the history of the house (Albright, Carroll, and Cummings 1977:5-118). In 1982, Robert F. Trent wrote a report to better document the Appleton and Taylor occupancies, from 1681 to 1720. Finally, William M. DeMarco wrote a brief report listing a number of documents pertinent to the history of the Iron Works (1983). In addition to these studies, popular histories of the Iron Works have also been published (e.g., Clarke 1968).

These studies form the basis for the discussion which follows. It is not the purpose of this report to duplicate previous efforts, but rather to summarize the history of the site as it may relate to the archeological record. The history of the Ironmaster's House property itself is of primary importance as it pertains directly to the archeological work which Moran conducted in the vicinity of the house in 1976. The industrial area of the property, located down the hill from the house on the river floodplain, is less directly related to the area of excavation (Figure 3). The following summary will include a brief discussion of the industrial facility, and a separate discussion of the area near the house. Although Milner's report on the 1976 excavation included a summary of site history, it focused on the Iron Works period itself and not on the later centuries of site occupation, all of which affected the formation of the archeological record. The discussion which follows will therefore include a broader range of site history.

The Iron Works

The Saugus Iron Works was founded by John Winthrop Jr. and the "Company of Undertakers of the Iron Works in New England," a group which Winthrop organized in England for the explicit purpose of developing an ironworking industry in the colonies. Such an industry would both supply the colonies with iron and bolster the then suffering ironworking industry in Britain. Winthrop served as the Company's agent, and in 1644-1645 he guided the construction of the first ironworks, located south of Boston in Braintree (Carlson 1973:6-9). The Braintree location proved less ideal than originally hoped for, and in 1645 Richard Leader, the agent who had recently replaced Winthrop, began searching for a better site (Carlson 1973:13-15). He decided upon the site on the Saugus River and probably began construction in 1646. The facility included a furnace, forge, and by 1650 or so a rolling and slitting mill. These were powered by water channelled from a holding pond, which was created by a large dam constructed across the river. Supporting structures included at least a charcoal storage building, a warehouse and dock, and a smith's shop (Carlson 1973:16-19). This industrial area was the focus of Roland Robbins' excavations from 1948 to 1953 (Brown 1975:3-14), and of the reconstructions which followed.

In addition to the primary industrial facilities, blacksmith Joseph Jenks was granted permission to operate an independent forge for making scythes and other tools, using water power from the furnace tailrace (Carlson 1973:20). He apparently also ran a grist mill which he sold to the Company in 1652 (Carlson 1973:36). These structures were located south of the furnace on the west bank of the river. Robbins tested portions of the Jenks area and located several foundations, including what he believed to be the grist mill, as well as remnants of the ironworking process. None of these features were reconstructed, and the area may retain some archeological potential (Brown 1975:25-33).

Other features on the 17th century landscape included housing which the Company constructed for the workers. This community was known as Hammersmith. Some of these structures are fairly well documented in the historical record (Cummings 1975:9-11), yet their location remains unknown. Cummings found a reference which indicated that at least some of the houses were located on the east side of the river (1975:9), and Carlson deduced the same from his research (1973:35-36). Their precise location on the east side of the river is unknown, and the area has not been archeologically investigated.

The Iron Works changed agents a number of times, and suffered its share of administrative and production problems. In 1658, the Company sold the enterprise to private interests. Following increased financial and management problems, production came to a final halt between 1668 and 1676 (Carlson 1973:54-56; Cummings 1975:16).

After the industrial era passed, the property was used for farming and was referred to as the "Ironworks Farm" throughout the 18th century (Cummings 1975:18). The great dam was broken in 1682, probably by local citizens who had been petitioning for removal of the dam since 1678 (Trent 1982:22). At that point, owner Samuel Appleton began to sell parcels of the large farm, a process which continued and finally affected the home lot itself after the next owner's death, James Taylor, in 1724 (Trent 1982:22-23, 32; Cummings 1975:21-25).

The Ironmaster's House Property

The study of the Iron Works property is complicated by the fact that the area designated as the National Historic Site is only a small part of what was originally the Iron Works' landholdings. It contains the major industrial area and the Ironmaster's House and its immediate home lot. The original parcel contained approximately 600 acres, and existed as such from the 1630s until 1682, when smaller parcels began to be sold off (Cummings 1975:21-25; Trent 1982:22-23). After 1724, the home lot was also subdivided (Cummings 1975:i, 28-37; Trent 1982:32). Since that time, the area has been greatly changed by urban development, and even the small area now retained as a National Historic Site (ca. 9 acres) has been disturbed by modern homes and roadways. Given the nature of the historic documents, it is difficult if not impossible to ascertain just where various structures were located on the original 600 acre parcel, or even on the smaller parcels associated with the house lot after 1724.

The most detailed study of the changes in the landscape of the home lot is Cummings' 1975 report on property ownership. In addition to a history of ownership, his report identified non-industrial structures which were constructed on the Iron Works property up through the 19th century and which were subsequently documented in the historical records. Cummings identified a total of 51 such structures, including the extant Ironmaster's House (Structure #23). Most of these structures were located on portions of the original farm which were parcelled off after 1682, while others were closer to the house. Some of the latter were possibly in the area which was archeologically examined in 1976.

Many of the structures not associated with the home lot have interesting histories in their own right, but will not be elaborated upon in this report. Cummings succinctly summarized the growth of these neighboring areas as follows:

> As early as about 1685 a fulling mill had been erected just above the defunct Ironworks, and this was the first in a long 18th and 19th century succession of industrial ventures on land formerly owned by the Ironworks Co. along the River, including a grist mill, saw mill, chocolate mill, morocco leather factory, calico bleaching and dyeing establishment, etc. (Cummings 1975:i).

All of the structures identified by Cummings are listed on Appendix 7. Further information about the structures not associated with the home lot may be obtained in Cummings' report (1975:22-24, 31-36).

The Ironmaster's House itself was probably constructed during Samuel Appleton's occupancy, possibly ca. 1682-1683 (Cummings 1975:20). This was after the Iron Works ceased to operate. Prior to its construction, two other houses existed on the property. The first was the farmhouse belonging to the property's first owner, Thomas Dexter (Structure #1), and the second was that constructed by Richard Leader ca. 1646-1647 for the management of the Iron Works (Structure #4) (Cummings 1975:3, 8). Their precise locations within the 600 acre lot are unknown.

Of the remaining 48 structures identified by Cummings, at least ten were located in the vicinity of the Ironmaster's House. These are identified with asterisks on Appendix 7, and are further identified in Table 5. The earliest structure (#27) was a brick kitchen first mentioned in 1724. A "small building called the smiths shop" was also recorded as joining to the brick kitchen, and a well was nearby (Cummings 1975:30). At the same time, a "Long Barn" was located somewhere near the house, possibly to the northwest as Cummings has speculated (1975:Figure 1). Later structures near the house included a shoemaker's shop (1794), a carpenter's workshop and a corn barn (1809), a "Little Barn" (1821), a shed (1825), and an unidentified outbuilding (1915). Table 5 lists these structures and their possible locations. Also near the house was the William Roby barn (1756) and the Thomas Mansfield House (1821), the latter of which was constructed on the site of the Roby barn (Cummings 1975:41) (Figure 10). The Mansfield House was removed by the National Park Service in 1976, after it was heavily damaged by arson. None of these structures located near the Ironmaster's House were extant during the Iron Works industrial period in the 17th century.

The long history of property ownership is complex, due to the gradual subdivision of the original 600 acre lot as well as the division of ownership of the Ironmaster's House itself. Table 6 provides the summary chain of title for the early farm and for the Ironmaster's House property alone after the cessation of the Iron Works operations. Documents indicate that by 1639, a house was present on the property, which was then farmland belonging to Thomas Dexter. The Ironworks Company owned the land from 1646 to 1653, at which time the creditors of the Company took ownership. Industrial operation continued until sometime between 1668 and 1676. Samuel Appleton became part owner in 1676 and sole owner in 1682, and had probably constructed the Ironmaster's House by the latter date (Cummings 1975:20). The later history of the house is highlighted by its division into east and west halves, each of which was independently owned for more than 100 years (1757-1889). The lot surrounding the house was also divided in ownership. Most of the known outbuildings discussed above were constructed during the period of divided ownership. The ell which projects off the western side of the

Table 5

Structures Near the Iron Works House*

Pg.#*	Cummings' Structure #	Structure	Period of Construction	First Mention	Last Mention	Gone By
19-20	23	The Iron Works House itself (Appleton-Taylor-Mansfield)	1676-1683	1683	Extant	
30	27	Brick kitchen, with adjoining smith shop; nearby well; "in yard of house"	1688-1724	1724	1749	1756
30	28	Long Barn (maybe NW of house; Cummings 1975:Fig.1)	bef. 1724	1724	1750	not traced
41	45	William Roby Barn (on road short dist. from Iron Works House, on site of Thomas Mansfield House)	ca. 1745-1756	1756	1809	1821
45	46	Shoemaker's Shop (Thomas Mansfield's; near house on 2 acre parcel)	bef. 1793	1793	1811	1811
46,52	47	Work Shop (Samuel Mansfield carpenter shop; near house)	bef. 1809	1809	1915?	1916?
46	48	Corn Barn #2 ("near the house;" poss. same as #47)	bef. 1809	1809	----	?
48	49	Thomas Mansfield House ("new house"; NPS removed)	ca. 1820	1821	----	1976
50-52	50	Little Barn (may be NW of house as per 1905 atlas) (Cummings 1975:Fig.6)	bef. 1821	1821	1825? 1905?	1889? 1916?
51-52	51	Shed (may be directly in front of house, 1915 photos)	bef. 1825	1825	1889	1916
52	No #	Chaise house/woodshed type structure (also in front of house, 1915 photos)	-----	1915 photos	----	1916

*from Cummings 1975

Table 6

Chain of Title, Iron Works House Lot*

1638	Thomas Dexter; agricultural & dwelling house; 600 acres.
1646-7	Dexter to Richard Leader for Iron Works Co.: 1648: Samuel Bennett (Iron Works carpenter) living in house. bef. 1653: Goodman Perry (Iron Works carpenter) rented house. 1650: John Gifford, Iron Works agent, lived in house.
1653	Ownership goes to creditors of the Iron Works Co.: Thomas Savage was principal party; William Paine was another primary holder; John Paine inherits father's interest in 1660 and ran Iron Works w/Savage until 1663, when Savage dropped out.
1676	Samuel Appleton, Sr. (J. Paine's nephew): after uncle's death in 1675, in litigation w/Thomas Savage until 1682, when acquires full ownership. Builds current "Iron Works House" at some point between 1676 and 1683.
1688/9	Samuel Appleton to James Taylor, who dies in 1716; wife dies in 1718.
1724	Taylor's daughters Abigail & Anna inherit house.
1734	All to Abigail & husband Edward Pell.
1742	1/2 house to brother-in-law William Roby, who has full possession sometime thereafter.
1757	Sarah Roby owns west end of house, Daniel Mansfield east end.

East 1/2 of House:

1758	East end to son Thomas Mansfield, who dies in 1758.
1760	Thomas' wife conveys to Ephraim Stocker.
1789	By this time, Samuel Mansfield (Thomas Mansfield's son) owns east end, and lives there by 1793. By 1793, Thomas Mansfield, Sam's nephew, has a shoemaker's shop near house; gone by 1811. Samuel and widow die in 1809.
1809	House divided into 2 parts. East end w/bldgs & 30 poles land to Sam's son Joseph Mansfield. 6.5a tillage & 1/2 barn to Sam's daughter Lucy & husband David Capen.

* Compiled from Cummings 1975, Carlson 1973

Table 6 (cont.)

1821 Joseph Mansfield - east 1/2 of house & land to David Capen. Thomas Mansfield's (Sam's cordwainer nephew) "New House" (Mansfield House) by this time on site of Roby barn.

1847 Capen to Joseph Emes.

1862 Emes to Benjamin Hitchings.

1868 Hitchings to Andrew Scott, who later reunites the house halves for use as a mill worker tenement (probably not owner-occupied after Mansfields).

West 1/2 of house:

1757 Sarah Roby to Moses Hawkes, Jr. (yeoman), incl. east 1/2 of barn.

1762 Hawkes to Thomas Riddan (tanner).

1789 Riddan heirs to Thomas Mansfield, Jr. (cordwainer).

By 1793 Uncle Samuel Mansfield (owns east 1/2) & nephew Thomas (west 1/2), joint owners, both living in house. Thomas also owns land around house except side yard between house & road. 2-story Lean-to probably built. Thomas' cordwainer's shop there by 1793, gone by 1811.

1821 Thomas dies, leaving old & new house to daughters & widow.

1825 Daughter Mary Mansfield & husband Amos to Timothy Davis (her brother-in-law) west 1/2 of house, w/shed & little barn. West 1/2 then occupied by a Thomas Floyd. Davis willed west 1/2 house to daughter Sarah Davis.

1889 Sarah E. Davis & husband John B. Walton convey west 1/2 house to Andrew Scott, who had east 1/2 since 1868.

Whole House & Property:

1909 Scott mortgages house to Danvers Savings Bank.

1915 Bank to George & George R. Niven, who 2 weeks later sell to Wallace Nutting (who restores house).

1920 Nutting to Charles L. Cooney of Boston.

1925 Cooney's widow/estate to Philip Rosenberg of Boston.

1944 Rosenberg to First Ironworks Association, (after Henry Ford Trade School Alumni Assn. released their interest).

1969 Deeded to NPS.

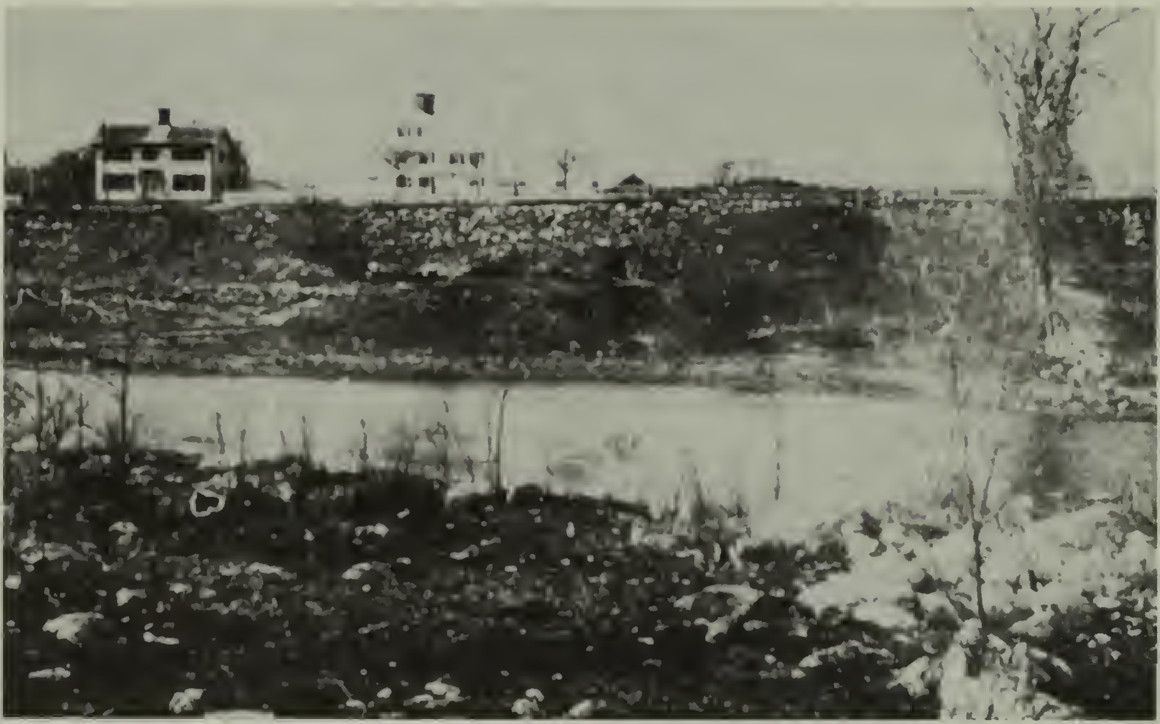


Figure 10. Historic photograph of the Iron Works House and surrounding area from the east bank of the Saugus River, taken by George Bliss, 1899. Note Mansfield House to left of Iron Works House. Courtesy of the Lynn Historical Society.

house was probably constructed between 1884 and 1915 (Albright, Carroll, and Cummings 1977:25).

In 1889, the two halves of the house were finally united again in ownership. Owner Andrew Scott used the house as a tenement for his millworkers for the next 20 years. Scott mortgaged the house in 1909, and in 1915 antiquarian Wallace Nutting obtained the property and began the restoration of the house (Albright, Carroll, and Cummings 1977:15-17). The house had been through many alterations since its construction, particularly during the final period of millworker tenancy. Nutting worked with a historical architect in an attempt to return the house to its original condition, and substantial changes were made to the house during the restoration process. Various aspects of these changes have been documented in the Historic Structure Report (Albright, Carroll, and Cummings 1977:16-17, 136-137).

During Nutting's restoration, two older buildings were moved to the site and their materials were used to build the eastern section of what is now the Park's museum (Albright, Carroll, and

Cummings 1977:29). The building was used as a blacksmith's shop and forge for the making of reproduction colonial hardware, one of Nutting's sideline business ventures. Nutting hired Edward Guy as blacksmith in 1917 (Carlson 1973:62). Guy lived in the ell of the Ironmaster's House, which Nutting had expanded during restoration (Albright, Carroll, and Cummings 1977:26). Although Nutting sold the Ironmaster's House in 1920, Guy continued to produce iron pieces on his own, renting the shop from succeeding owners and working there until 1950 (Carlson 1973:63; Albright, Carroll, and Cummings 1977:138). His son Edward L. Guy also learned the blacksmithing trade and worked full time until 1939 and part time until 1951. The Guy family lived in the ell of the Ironmaster's House, except during Cooney's ownership from 1920 to 1925, until ca. 1950 (Albright, Carroll, and Cummings 1977:27, 138). The shop was expanded by the First Ironworks Association during their tenure for use as a museum (Albright, Carroll, and Cummings 1977:29; David Kayser, personal communication 1987).

Following Nutting's restoration project, the house passed to two succeeding private individuals, and in 1942 the Henry Ford Trade School Alumni acquired interest in the property with plans to move the structure from Saugus to Ford's Greenfield Village. Public sentiment and the work of a number of activists were able to stop the planned purchase, and in 1944 the house was purchased by the town of Saugus. To administer the site, the First Ironworks Association was founded, and by 1949 the financial support of the American Iron and Steel Institute allowed for the excavations of the industrial area and the restoration of the site. This was accompanied by some minor restoration and repairs to the house itself (Albright, Carroll, and Cummings 1975:19-23; Carlson 1973:62-70). In 1969, the property was deeded to the National Park Service (Carlson 1973:72-74). The NPS has also conducted a number of construction and restoration projects on the property since that time.

Summary: The Ironmaster's House has thus had a long and varied history, with many different occupants and over a century of divided ownership and occupancy. At least ten outbuildings were located in general proximity to the house, including another house (the Mansfield House), several barns and sheds, a kitchen, and three shops. The locations for most of these remain unknown, and none of the structures are currently standing. Several additional buildings exist near the house today, all of which were constructed after 1915. Over the last 75 years there has been a good deal of change to the Ironmaster's House itself, and to the surrounding grounds. The general outlines of much of this work is included in the Historic Structure Report (HSR) (Albright, Carroll, and Cummings 1975) and the various completion reports for NPS projects (Carroll 1979, 1985). The ACMP has attempted to compile information on documented ground disturbances near the house (Figure 11). Other disturbances

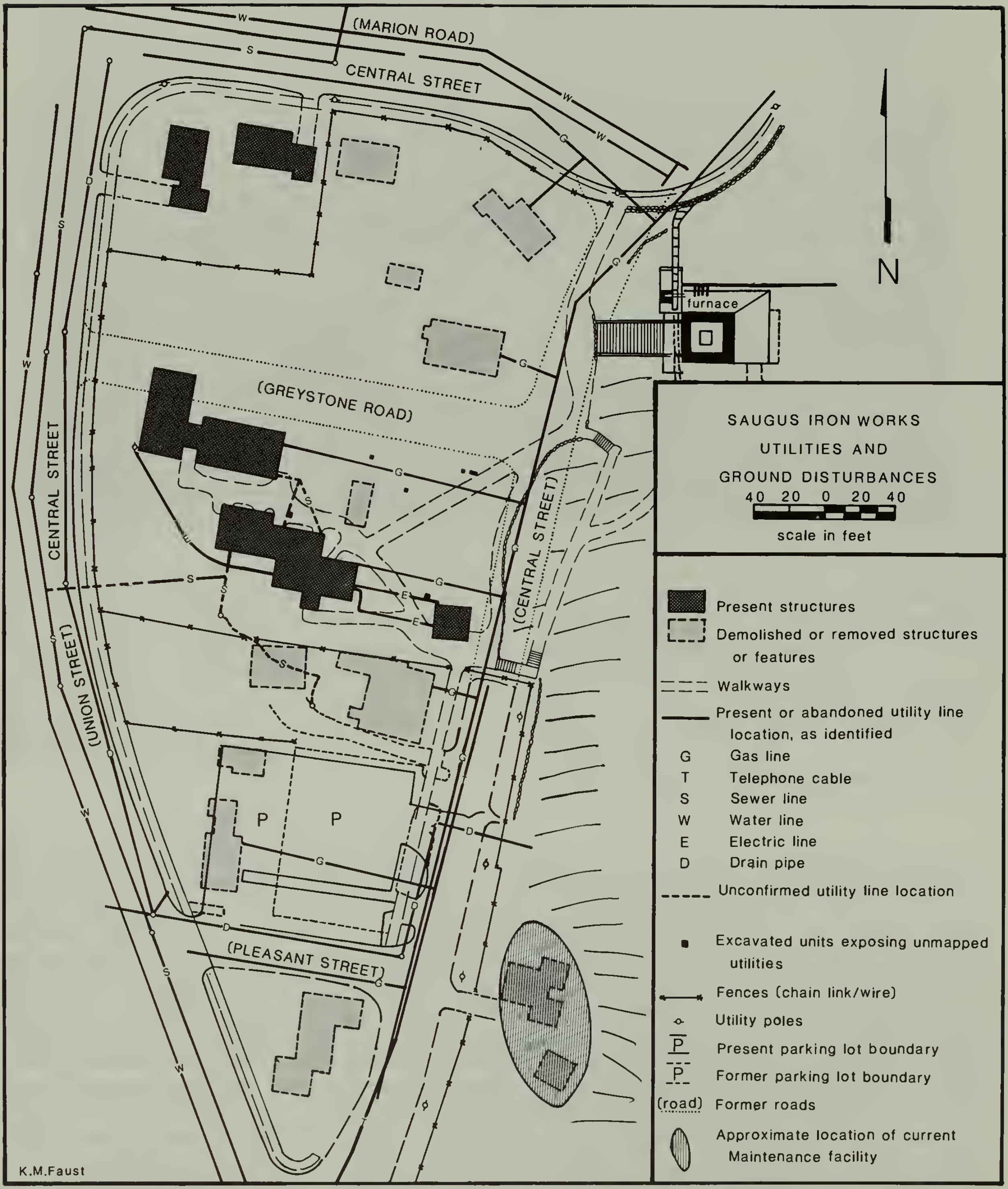


Figure 11. ACMP map of non-archeological ground disturbances, including utilities and modern surface features.

lacked sufficient documentation to be mapped, although Robbins' field notes and the NPS completion reports and HSR's provide additional information (see Map Construction).

The 1976 excavation uncovered the architectural remains of only one of the structures which once existed near the house. The excavation also revealed another major historic feature, as well as evidence of a wide variety of ground disturbances which occurred on the site. These results will be discussed in the following sections.

Prior Research Results

The 1976 excavations were conducted in the area of the Ironmaster's House as a result of recommendations made during Brown's Phase I study. Brown identified areas of the site disturbed by Robbins, and areas with remaining archeological potential (see Introduction of this report). Moran identified more specific areas of the site which seemed worthy of investigation:

> On the basis of recently completed reports (Brown 1975; Cummings 1975; Carroll 1976) and resistivity data, the yard behind the Ironmaster's house was the location of the most intensive testing....The recent existence of Greystone Rd., which bisected the Park from West to East, and the several modern houses on its North side, largely confined our testing program to the South of Control Bound "C."

The investigation was conducted in three stages: a soil resistivity survey, an auger survey, and an excavation program (Milner 1978:7). Moran completed a preliminary report on the fieldwork (1976a), and John Milner Associates wrote the final report under a separate contract (Milner 1978). The following discussion will summarize the project's field methodology, results, and analyses as documented in these two reports.

Research Strategy and Field Methods

Prior to actual excavation, both a resistivity survey and an auger survey were conducted to locate areas with high archeological potential. These investigations took place during a five week period in May and June of 1976 (Moran 1976a:3). The results helped to determine the placement of the units which were excavated during a four week period in June and July (Moran 1976a:7-8). A single grid system was used for all three phases of work. The site was divided into five sectors which were oriented from a primary datum (Control Bound C) and a number of secondary datums (Stake A, and Transit Points 1-4) (Figure 8).

Resistivity Survey: The resistivity survey was conducted across the entire site area, using a "Wenner four-probe array" (Milner 1978:7-8). The four probes were placed one foot apart along an east-west axis, and readings were taken every four feet along north-south grid transects which were located at eight foot intervals. Two readings were done at each station (0-2 feet, 0-4 feet), with a total of 1112 stations (Milner 1978:8). The original conductivity values and a plan of the stations were to be included as an appendix to Milner's report (1978:8), but this was apparently never done. The data values are stored with the original field records in the SAIR accession folder.

Moran produced three contour sheets reflecting resistivity anomaly patterns at 0-2, 2-4, and 0-4 feet below ground surface. He found that the 0-4 foot contour map was most useful for identifying anomalies. Computer-generated analyses were also performed, including histograms, range and standard deviation calculations for each sector, three Symap maps, and a series of trend surface analysis maps (Moran 1976a:5-7). Milner included in their report a dot-density diagram, an overall contour map and a series of conductivity profiles (1978:9-11, Figures 3-2 to 3-7). These were produced using Moran's data. Of these different analyses, both Moran and Milner concluded that the hand drawn contour maps were most useful. Milner's figure of the overall contour map with superimposed excavation units is reproduced here as Figure 12.

Excavation units were subsequently placed to test areas of high conductivity as well as areas of rapid change from low to high readings (Moran 1976a:7). The dry-laid stone foundation, a major feature identified during excavations, was located in an area of high conductivity values (Moran 1976a:8). Additional high readings occurred in an area west of the foundation, where later excavations revealed a large concentration of coal ash and artifacts (Milner 1978:9). Beyond these two areas of high readings, there were no identified anomalies which helped to locate features during later excavations. Milner noted as well that another major feature, the possible earthen waterway, was not identified by the plotting of conductivity values. They thus suggested that resistivity surveys should be used with other complementary strategies for the discovery of archeological features (1978:11).

Auger Survey: The auger survey was conducted across Sectors 1 and 2 only, with stations located at eight foot intervals. Moran noted that the augers located several areas with high artifact concentrations which corresponded to areas of high conductivity. Subsequent excavations revealed the large trash deposit and architectural features in these areas. The distribution of artifact quantities was plotted on a map, which was reproduced in Milner's report (1978:Figure 3-1), and appears here as Figure 13. The actual auger profiles were to be appended to Milner's final report (1978:7), but this was apparently not done. The originals are stored with other field records in the SAIR accession file. Milner apparently never received the auger artifacts from Moran (Daniel Roberts, personal communication 1987), and they are all missing from the SAIR collection.

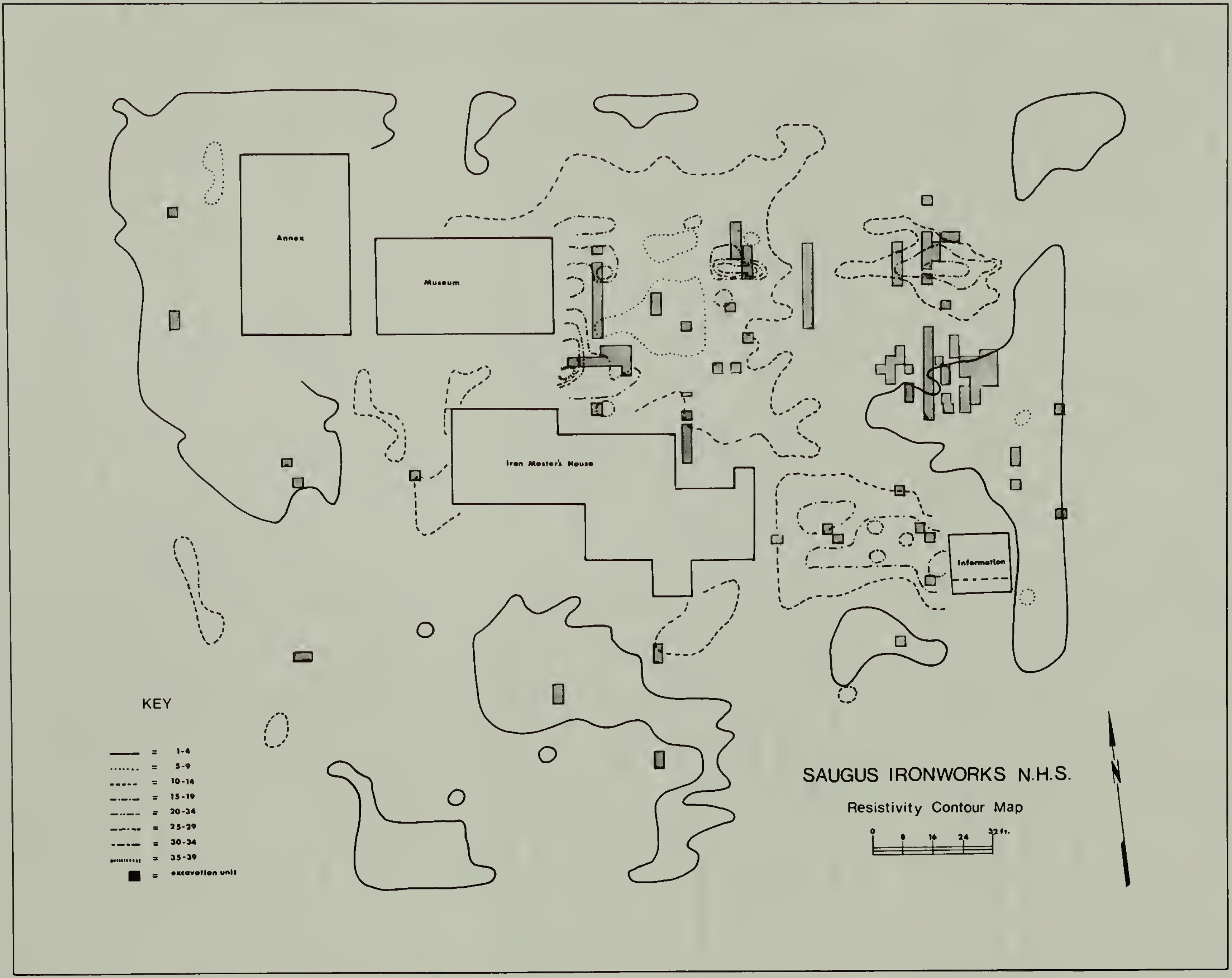


Figure 12. Milner's map of resistivity contours with superimposed excavation units (1978:Figure 3-2).

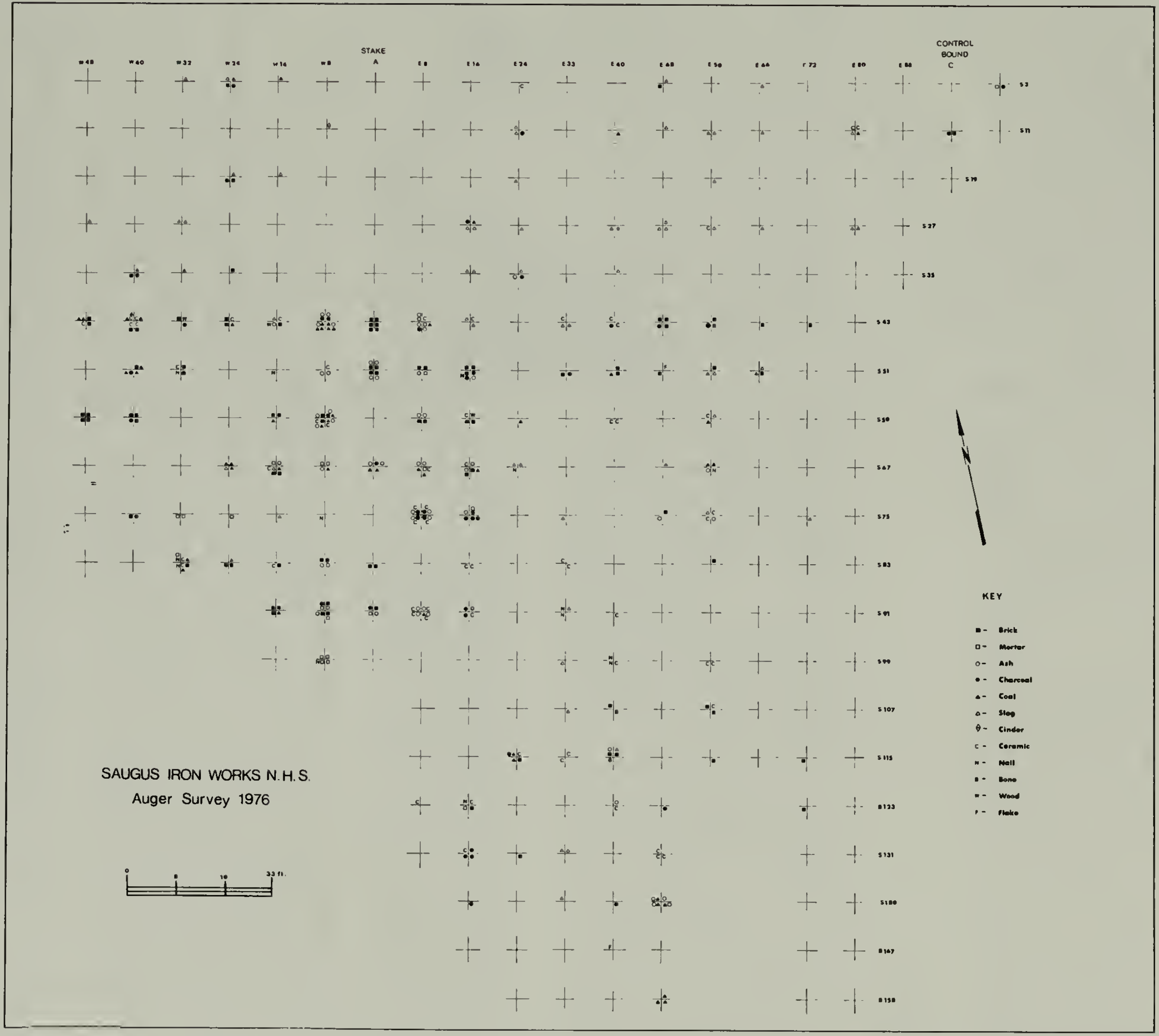


Figure 13. Milner's map of auger survey artifact distribution (Figure 3-1).

Test Excavations: Using the results from the resistivity and auger surveys, excavation units were placed across the site to investigate suspected anomalies. Over 100 units were excavated, in the form of either 2.5 foot squares or trenches of variable length measuring 2.5 feet wide. These units covered a total of more than 625 square feet (Moran 1976a:7; Milner 1978:11). Their locations were designated according to the Sector number and the grid coordinates of the southeast corners. The units were excavated in arbitrary 10 inch levels or "lots," although this varied and at times lots were designated on the basis of natural strata. Milner noted that this inconsistent approach to designating excavation strata was a problem for artifact analysis (1978:12-13). Several historic and prehistoric features were located during the excavation phase.

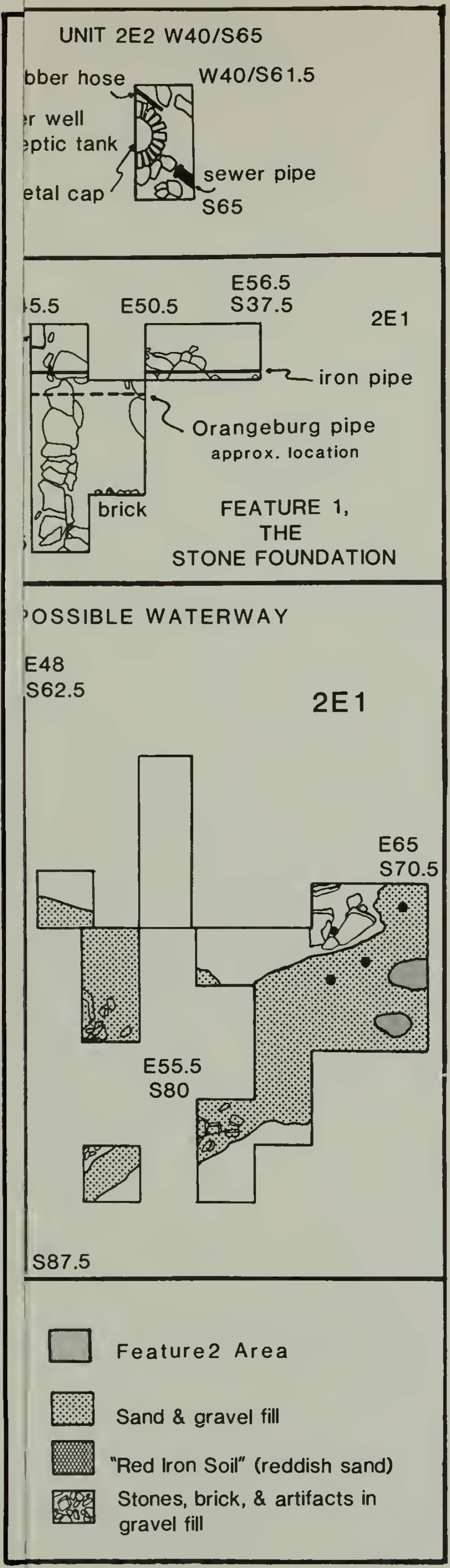
Features

Two features were designated during excavation: Feature 1, a dry-laid stone foundation; and Feature 2, a possible earthen waterway. These were the only features described in Moran's preliminary report (1976a). Although no additional feature numbers were assigned, Milner was able to identify several more features from the excavation field notes, including a large historic trash deposit, a portion of a lean-to formerly attached to the house, several prehistoric pit-like features, and a number of miscellaneous minor features. These had not been identified in Moran's preliminary report (1976a).

Feature 1, The Foundation: On the basis of high conductivity readings, excavation units were placed in Sector 1 in the area surrounding E48/S42.5. These units revealed portions of the walls and three corners of a rectangular dry-laid stone foundation (Figure 14), described by Moran as follows:

> The foundation measured about eight feet square. Its walls were laid in a shallow builder's trench and an incomplete third coursing of stone survives above a hard-packed earth floor about four feet below present grade. The cellar hole was filled with many large stones [presumably at least in part the rubble from this partially dismantled foundation], bricks and 19th century artifacts in a context of rust stained soil with unidentified ferrous nodules (Moran 1976a:12).

Moran speculated that the foundation could be the remains of a cellar for a "domestic or storage building" (1976a:12). He noted that Cummings' documentary research had identified a detached brick kitchen, and that there was "a large number of bricks" in the foundation fill. However, no truly substantiating evidence was found for the feature's function, and a construction


UNIT 2E2 W40/S65
bber hose
W40/S61.5
r well
eptic tank
sewer pipe
etal cap
S65
5.5
E50.5
E56.5
S37.5
2E1
iron pipe
Orangeburg pipe
approx. location
brick
FEATURE 1,
THE
STONE FOUNDATION
POSSIBLE WATERWAY
E48
S62.5
2E1
E65
S70.5
E55.5
S80
S87.5
Feature2 Area
Sand & gravel fill
"Red Iron Soil" (reddish sand)
Stones, brick, & artifacts in gravel fill

F

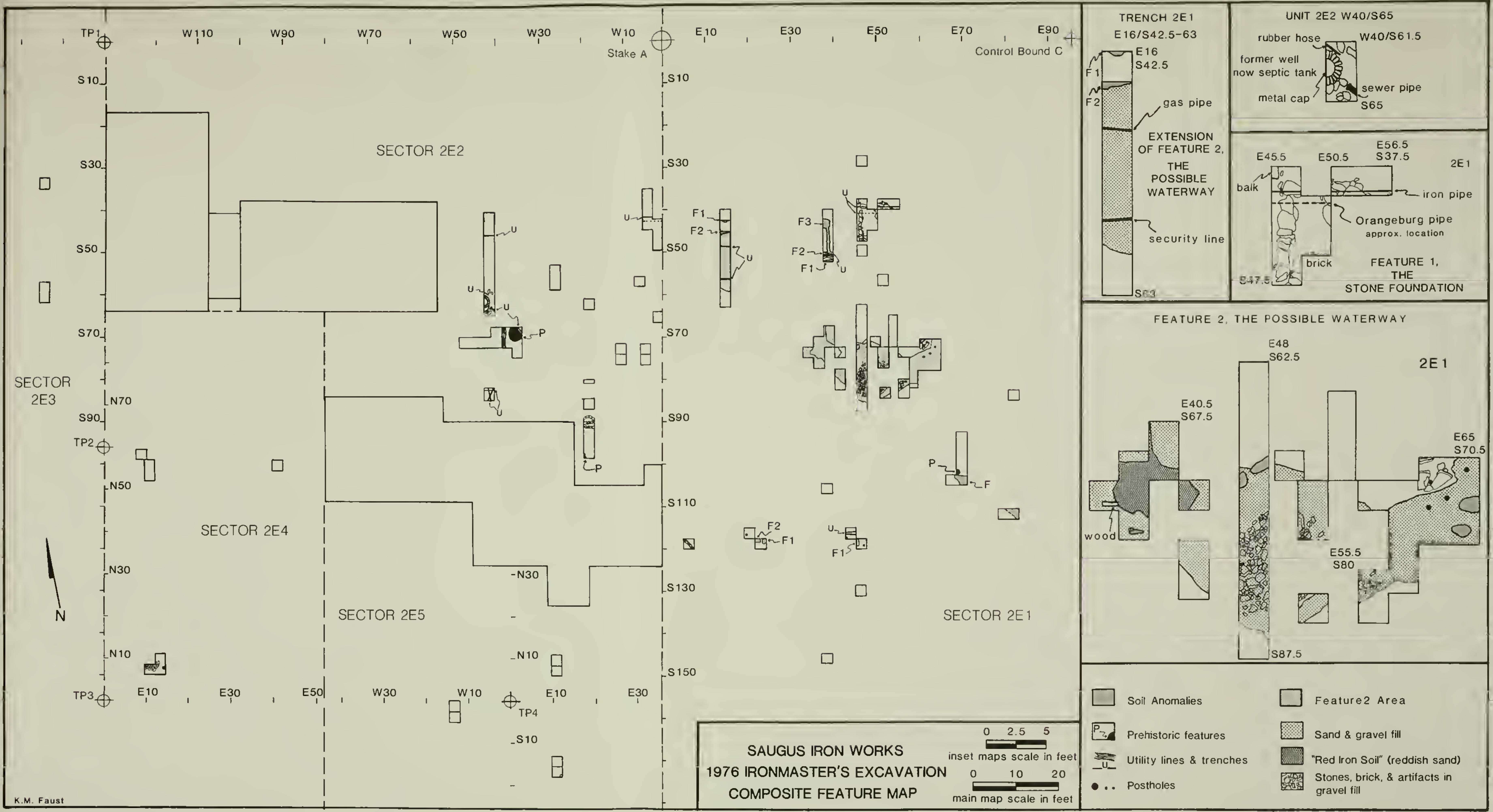


Figure 14. ACMP composite feature map, showing both historic and prehistoric features.

date could not be determined. The only conclusion he reached was that the foundation was "filled in, if not dismantled, during the mid-19th century" (Moran 1976a:12).

Milner performed a functional analysis of the artifacts recovered from the area of the stone foundation. The artifacts from units E48/S38.5-47.5, E48/S51, E50.5/S40-45, E53/S40, and E55.5/S40 were combined and classified according to general functional categories. These were compared to a group of artifacts recovered from an area behind the Ironmaster's House in Sector 2 (W33.5/S68.5-75, W36/S68.5-72.5, W38.5/S70, W36-46/S72.5, and W46/S72.5). In the area behind the house, more than 90% of the artifacts fell into the "kitchen" artifacts functional class. In the foundation area, a high percentage of materials were architectural artifacts, and when these were discounted, the "kitchen" artifacts accounted for about 85% of the remainder. Milner did not feel that these percentages justified the interpretation of the structure as the detached brick kitchen, and recommended that the foundation be further excavated using tighter horizontal and stratigraphic controls, as well as more careful artifact recovery techniques (1978:26-28).

Feature 2, The Possible Waterway: The second major feature was also located in Sector 1, south of the stone foundation in the area near trench E48/S62.5-87.5. The feature was trench-like in form, was oriented from northwest to southeast, and was identified in a number of excavation units (Figure 14). Moran's profile of the feature as it appeared in unit E16/S46.5-64.5 is reproduced here with additional detail added from the original field map (Figure 15). In this location, the feature measured approximately ten feet wide by six feet deep. Moran noted that the feature was "partially filled with building rubble similar to that found within Feature 1 [but was] apparently largely free of chronologically diagnostic artifacts" (1976a:13). The only diagnostic artifacts were two nails, one of which was a cut nail. Moran speculated that at least part of the feature was filled during the 19th century, probably when Feature 1 was demolished (1976a:13, 18).

Moran related this feature to a similar feature uncovered by Robbins during earlier excavations. In the area of former Greystone Road, Robbins located what he interpreted as a "canal or watercourse carrying water from the Cranberry Bog, a few hundred feet west on Marion Rd., southeasterly to some power source located at or below the bluff" (Moran 1976a:18), presumably used for providing power to Joseph Jenks' 17th century operations (Milner 1978:15). Moran believed that Feature 2 was a continuation of the watercourse identified by Robbins. Both features were generally aligned, headed southeast toward the bluff, and were similar in size and associated fill (Moran 1976a:13). Using Robbins' field notes, Milner later constructed

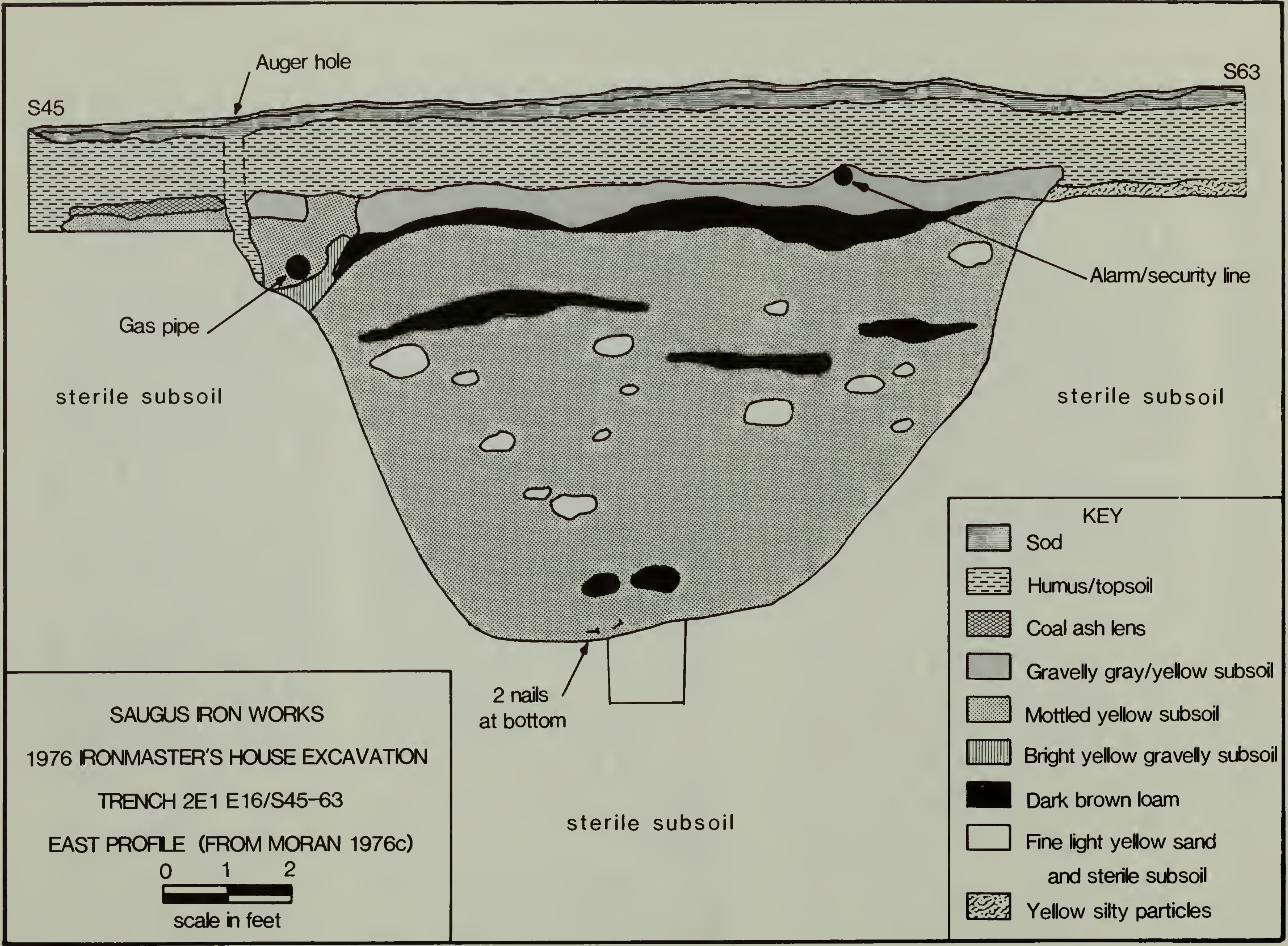


Figure 15. Profile of Feature 2, the possible "waterway," transect 2E1 E16 (from Moran 1976c).

a sketch map showing the approximate location and configuration of Robbins' feature (Figure 16). Milner concurred with Moran that it could well be related to Feature 2 and could represent a waterway or raceway (1978:14).

Moran noted that the feature seemed to turn to the east at the southeastern edge of the excavated area, thus heading more directly for the area of Jenks' operations. Milner's review of Moran's field notes revealed that additional units were excavated to the east and southeast of Feature 2 in an attempt to locate an extension of the feature closer to the bluff and to the Jenks area (SEC 2E1 E71.5/S97.5-100, E71.5/S105, E83.5/S113, E83.5/S85). Apparently the area had been disturbed by landscaping activity, and no such evidence was found (Milner 1978:16). Milner recommended additional excavation of the Jenks area itself in order to locate the terminus of the possible waterway and any remnants of the water control features which may have been used (1978:50).

There was no sign of shoring or a flume which would have prevented the feature from collapsing while carrying water, and Moran hypothesized that such material may have been removed after its use was discontinued (1976a:18). Milner suggested that there may instead have been a wooden flume into which the water from the earthen raceway was channeled (1978:16). It was not possible to determine the feature's date of construction or function from the excavated evidence, and Moran suggested that additional excavation might help to refine the interpretation (1976a:18-19). Milner also recommended that the Jenks area be included as a part of the overall interpretation of 17th century activities at the Iron Works.

Historic Trash Deposit: A third feature was discovered in the area around unit W0/S47 in Sector 2. Although Moran did not discuss the feature in his preliminary report (1976a), Milner found reference to it in the daily field notes. The feature was located in an area of high conductivity readings to the west of the stone foundation. It consisted of a deposit of mixed soils, including coal ash, and a dense concentration of 19th century artifacts (Milner 1978:15). Milner noted that the excavators thought at the time that the deposit might be a portion of the possible waterway discovered in Sector 1 (1978:15). This interpretation of the deposit was not mentioned in Moran's preliminary report.

Lean-to Foundation: An excavation trench located directly behind the Ironmaster's House revealed part of a stone foundation for a former lean-to (W16.5/S87-98.5, Sector 2). The existence of the lean-to was known prior to excavation, and Moran excavated the trench in order to search for possible remnants (Milner

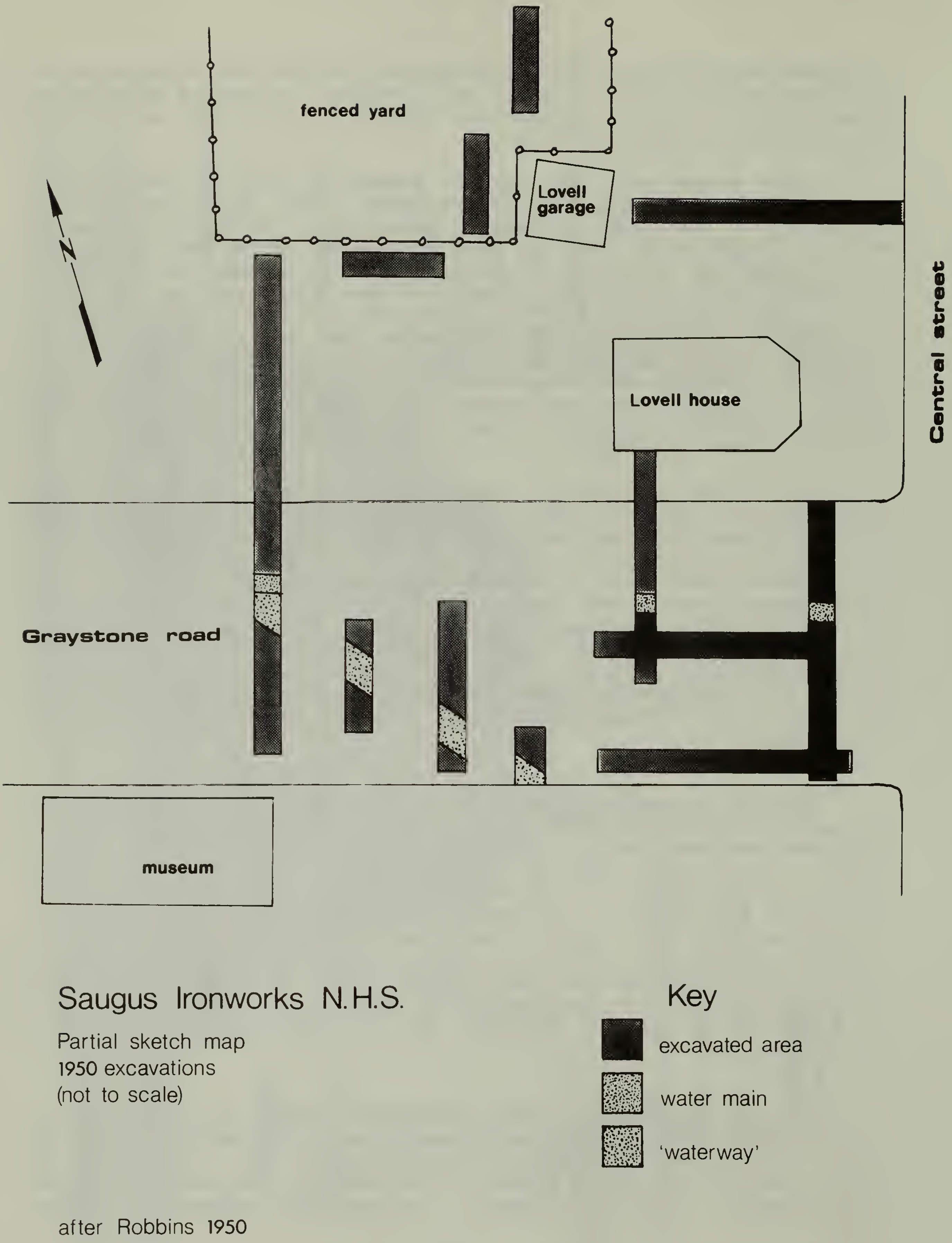


Figure 16. Milner's sketch map of Robbins' trenches and the possible waterway/canal (1978:Figure 1-2).

1978:18). Moran did not mention the discovery of this feature in his preliminary report, and Milner simply stated that it had been discovered. Neither report provided additional detail.

Prehistoric Features: Although Moran did not mention the discovery of prehistoric features, Milner's subsequent report noted that several were documented in the original field notes. Milner's references to the features were scattered, but three which were mentioned were pit-like features of undetermined function. Roughly circular in shape, these pits contained lithic debris and extended into the subsoil (Milner 1978:19, 48). They were located in units SEC 2E1 E83.5/S113, 2E2 W16.5/S87-98.5, and 2E2 W36-46/S72.5 (1978:16-18).

Additional prehistoric features included a lens of rich black soil in unit SEC 2E2 W0/S66.5. The lens overlay sterile subsoil at a depth of 22 inches below ground surface (Milner 1978:17). Milner did not discuss the specific contents of the lens, but presumably it contained only aboriginal materials. This was the only stratigraphic deposit which the field notes attributed to prehistoric occupation, although the original field bags for the artifacts occasionally mentioned the discovery of prehistoric materials beneath historic deposits (Milner 1978:20, 49). Milner suggested that the use of arbitrary 10 inch excavation levels prevented the careful recording of such distinctions in natural or cultural stratigraphy (1978:20).

Another concentration of lithics was noted in unit 2E1 E8/S120 in Sector 1, which was partially disturbed by a modern pipe trench. The lithics were concentrated at 16 inches below ground surface and included projectile point fragments (Milner 1978:17). Milner also noted that unit W36-46/S72.5 was excavated in Sector 2 to investigate reports of an aboriginal burial discovered during previous construction activity. No burial was located, although one of the prehistoric pit-like features was discovered in this unit (Milner 1978:18).

Miscellaneous Historic Features: Milner was able to identify several additional historic features from the original field notes. As was the case for all features other than Features 1 and 2, these did not receive numeric designations during excavation, and were not discussed in Moran's preliminary report. These features included one post mold, two pit features, and a stone concentration.

The post mold and pit features were located in units 2E1 E21.5/S117.5 and E24/S120, respectively, between the Ironmaster's House and the visitor information building. Although Milner noted that the pit features were "of comparatively recent origin" (1978:17), no further interpretation was offered. The stone concentration was located in units 2E4 E12/N6 and E14.5/N6, southwest of the house. The stones were first encountered at eight inches below ground surface, but the field notes offered no interpretation and the units were not expanded for further investigation (Milner 1978:19).

Summary: The two major features discovered (Feature 1, the stone foundation, and Feature 2, the possible waterway) were the only features which received feature number designations. Although it is clear from the original field notes that additional features were located and excavated, these did not receive numeric designations and the field notes did not provide consistent or comprehensive information about their locations, configurations, contents, or possible functions. Milner identified a number of these additional features from the field notes. One additional architectural feature, the stone footing for the former lean-to, was discovered behind the house. Other historic features included a large 19th century trash deposit, a post mold, and two pit features. Prehistoric features included at least three pit-like features, one soil lens which may have been an occupation surface, and an area of concentrated lithics.

Due to the incomplete nature of the field records, Milner was unable to perform a more detailed analysis of these additional features. It should be noted that those which could be identified from the field notes may not represent the total number of features discovered and excavated, as the field notes did not consistently describe such findings. The subject of both historic and prehistoric features will be further discussed in the ACMP evaluation section of this report.

Artifact Analysis

Milner's report included several analyses of both the vertical and horizontal distribution of various artifact classes. These will be briefly summarized below.

Vertical Ceramic Distribution: The first analysis was conducted to determine if the site retained any stratigraphic integrity. Milner qualified the results by noting that the analysis method was very general, and that there were drawbacks to using the data for any stratigraphic analysis given that excavation levels varied from arbitrary 10 inch levels to levels which reflected changes in soil type (1978:21-22). For Lots (levels) 2-4, the percentages of certain chronologically diagnostic historic ceramic types were calculated and plotted on histograms (Milner 1978:Figures 4-1 to 4-4). The ceramic types used included delft, creamware, red earthenware, porcelain, stoneware, refined white earthenware, and an "other" category.

The analysis results confirmed Milner's original hypothesis that certain trends would be present if the site retained stratigraphic integrity (1978:22). Lower, or chronologically earlier, levels contained a predominance of ceramic types identified by Milner as early wares, such as redware and delft, and upper levels contained progressively higher percentages of later ceramic types, particularly refined white earthenwares. Although the ceramic types used were admittedly gross categories, Milner concluded that there did seem to be a general chronological progression of types, and that the site probably retained a certain degree of stratigraphic integrity (1978:24).

Horizontal Distribution of Ceramics and Nails: In addition to the stratigraphic analysis of ceramic types, Milner plotted the horizontal distribution of both ceramics and nails across Sectors 1 and 2. This was done to determine whether the site exhibited a non-random pattern of artifact distribution (Milner 1978:24). The quantities of artifacts were plotted as dot density diagrams on the site map. Ceramics were quantified for Lots 2 and 3 separately, and nails were quantified for Lots 2-5 on a single diagram (Milner 1978:Figures 4-5 to 4-7). Lot 1 materials were not used, as they were more likely to be disturbed (Milner 1978:24).

The resulting dot density plans indicated several areas of concentration. The strongest concentrations of ceramics occurred in two areas: directly behind the Ironmaster's House in Sector 2 in the vicinity of grid point W36/S70; and further northeast in Sector 2 near W2.5/S44.5 (Milner 1978:24). The latter concentration reflected the 19th century trash deposit discussed previously, and Milner recommended that further excavation of this feature be conducted. Milner believed that the former concentration, located near the house, was refuse reflecting the disposal patterns which characteristically occur around historic structures (Milner 1978:24). The dot density plan of nails showed a different distribution pattern, with the highest concentration occurring in the vicinity of Feature 1, the stone foundation. The remaining concentrations were similar to those indicated by the ceramics (Milner 1978:25).

The horizontal distribution of ceramics and nails thus indicated three strong clusters of materials. Two of the clusters were associated with known features, the stone foundation and the 19th century trash deposit. The remaining cluster was close to the house and Milner associated it with general domestic refuse disposal near the house (Milner 1978:25-26). A fourth but lesser concentration of artifacts was located in the vicinity of unit W9/S74 (Milner 1978:29). The clusters were not further analyzed.

Prehistoric Lithic Analysis: The excavation recovered a large quantity of prehistoric lithics, including a number of projectile points and point fragments. In his preliminary report, Moran in fact reported that "aboriginal cultural materials were more numerous than historic materials" (1976a:2), although the collection as it exists today actually contains a predominance of historic artifacts. Milner devoted a section of the report to the prehistoric materials, but found that there were limitations to the analyses which could be performed given the nature of the stratigraphic data. The use of arbitrary 10 inch excavation levels resulted in the mixing of cultural deposits. In addition, prehistoric features were not excavated separately, resulting in further mixing of materials. Milner also noted that the site was graded during Robbins' tenure, which may have contributed to the mixing of cultural deposits (1978:30). The nature of Milner's analysis was therefore descriptive, rather than quantitative.

First, Milner classified the tool types present in the collection and provided a description and drawing of each specimen (1978:30-40). Next, a geologist from Bryn Mawr College was consulted for the identification of lithic raw material types (Milner 1978:1), and the total quantity and percent of flakes of each material type were calculated and presented in tabular form (Milner 1978:Table 5-1). The results indicated a predominance of basalt flakes, with rhyolite and chert flakes occurring in lower percentages, and Saugus Jasper in yet lesser quantities. The ACMP identifications differed substantially, as will be discussed in the ACMP Evaluation section of this report (Table 13).

The percentages of waste flake categories were also calculated, using cortical, secondary, retouch, and unclassified as categories (Milner 1978:Table 5-2). After unclassified flakes (905 flakes, or 42%), secondary flakes were most plentiful (878, 41%), while retouch flakes were next (255, 12%) and cortical were last (116, 5%). Milner interpreted this to mean that most of the lithic reduction occurring on the site was associated with the stages between raw material reduction and retouching, and that the materials were quarried and partially reduced elsewhere (1978:43). This issue will also be addressed again in the ACMP Evaluation section of this report (Table 14).

Milner was unable to perform stratigraphic analysis of the lithics, and thus could not associate different material or flake types with changes through time. However, in analyzing the tool types and the few sherds of prehistoric ceramics in the collection, Milner determined that three major periods of occupation were represented: the Late Archaic, Transitional, and Late Woodland periods (1978:44-46). Milner hypothesized that there may have been a gap in occupation of the site occurring during the Early and Middle Woodland periods (ca. 1000 BC - AD 900), possibly due to changing climate and the movement of shellfish to more southerly locations (Milner 1978:46). Further excavation was recommended to determine if this gap was in fact reflected at the site, with careful attention to stratigraphic excavation controls (Milner 1978:46). The ACMP further evaluated Milner's hypothesis (see ACMP Evaluation).

Features Located by Robbins

In addition to the features located by Moran in the vicinity of the Ironmaster's House, several features were recorded by Robbins during his earlier work in the area. Brown summarized these findings in his report on Robbins' work (1975:19-23). Beneath the surface of former Greystone Road, which ran in an east-west direction along the north side of the museum building, Robbins found "the remains of a foundation" (Brown 1975:20) as well as portions of the possible canal or waterway discussed previously. Brown did not further discuss the foundation, presumably because it was not discussed in Robbins' notes. A second foundation was discovered in the location of present Central Street, approximately west of the house and museum. This foundation was described as "about 4' square with pieces of broken brick and mortar" (Brown 1975:20). No interpretation of this structure was offered. Other than a stone pier located to the rear of the house (Brown 1975:21) and several postholes southeast of Robbins' office in the ell (Brown 1975:22), no further architectural remains were found.

The precise locations of Robbins' excavations near the house could not be determined, although Brown was able to document his trenching in several areas: Greystone Road and to the north; west of the museum along the path of current Central Street; behind the house and in the area of a new extension to the museum; and to the southwest of the house (Brown 1975:20-23). Brown also reported on a number of extensive landscaping procedures in the vicinity of the house (1975:22-23). The only major features recorded in the areas tested by Robbins were the two foundations and the possible waterway. Unfortunately, very little was noted about the foundations, and their location and functions remain unknown.

Prior Research Recommendations

Both Moran and Milner made a number of recommendations for future work at the site. Most of the recommendations called for additional excavation. Moran suggested that further work be done to determine the nature of the possible waterway or raceway (Feature 2), as well as the foundations to the east of the bluff which were associated with Jenks' operations. He also recommended that additional documentary research be conducted to better define the 19th century activities which may have affected the feature (Moran 1976a:18-19). Milner's report also recommended additional excavation of the possible raceway, particulary east of the bluff for a possible terminus of the feature and its association with the structures of Jenks' operations (1978:50).

Both researchers called for further excavation of the stone foundation to attempt to determine its configuration, date of construction, and function (Milner 1978:50; Moran 1976a:12-13). In fact, Moran suggested total excavation of the feature (1976a:13), and may have anticipated that this would occur, as project files indicate that a Phase III excavation was planned in order to fully excavate the features located during Moran's Phase II study (NPS n.d.). However, a Phase III was never conducted.

Milner made the additional recommendation that the area of artifact concentration located near SEC 2E2 W0/S44 be further excavated to better interpret the nature of the historic deposit. The area between the visitor station and the Ironmaster's House also merited further attention, as it showed a varied pattern of resistivity readings (Milner 1978:50). A final recommendation concerned the field methods to be used in any future study, which Milner emphasized should include the use of larger excavation units, and the maintenance of careful stratigraphic controls based upon natural or cultural soil levels (Milner 1978:48-49).

ACMP Evaluation: Historic Component

The collection from Moran's 1976 Ironmaster's House excavation is a large and varied artifact collection from a site which was occupied from prehistoric times into the mid-20th century. Milner's report on the project provided a good account of the excavation and offered a number of artifact analyses (see Prior Research Results). The goal of the ACMP evaluation is to augment these analyses in hopes of providing further interpretive information about the area near the Ironmaster's House, and to provide comparative data for other researchers.

The problems which confronted Milner in the interpretation of the 1976 excavations are the same problems which confronted the ACMP. The limitations imposed by these problems inhibit certain forms of analysis, and will be evident in the following discussions. Many archeological museum collections present such obstacles, but nonetheless provide a range of research options (c.f., Cantwell et. al. 1981). The ACMP has attempted to at least identify all of the features recorded in the excavation records, some of which were not reported by Milner. These features and the general artifactual content of the collection will also be regarded in light of the site's historical evolution.

Moran's excavations revealed that the grounds surrounding the Ironmaster's House have been extensively disturbed. This is not unexpected, as the site had been occupied for such a long period of time. Cultural activities on the site included the construction and destruction of buildings since the mid-17th century; the installation of numerous utilities such as sewage, gas, water, electricity, and telephone service during the last century; landscaping the grounds, including the addition and removal of soils and vegetation, particularly during the 1950s; the activities of cottage industries, such as cordwaining and blacksmithing; and the general use of the yard spaces around the house.

As a result, the excavators encountered difficulties in interpreting the numerous horizontal and stratigraphic deposits. This is evident in comparing the field notes to the field maps and artifact proveniences. Often a feature would be designated in the notes, but was not subsequently mapped or was not excavated as a separate unit. Stratigraphic levels were excavated differentially as arbitrary 10 inch levels or as cultural strata. These inconsistencies in field methodology presented obstacles to the interpretation of an obviously complex archeological record. Milner was able to identify and interpret certain aspects of the site's historic record, and the following discussion will expand upon that work.

Historic Features

Previously Unrecorded Features: Although Milner identified the majority of features excavated, a few additional features or anomalies were mentioned in the field notes. These were for the most part minor features or unidentified disturbances, as summarized in Table 7. With few exceptions, these did not appear to have been excavated separately, as there were no artifacts with proveniences designating the features (Table 7). Presumably the artifacts recovered from the features were combined with the materials from the surrounding soil matrices of the excavation units. It was therefore not possible to analyze the dates or functions of these features based upon artifactual evidence. The field notes often provide sketches of the features and their locations.

Many of the features noted in the field notes were disturbances caused by the installation of utilities during the 20th century (Table 7, item 1). These will not be further discussed although they are noted in Table 7 and are located on Figure 14 when locational data was available. Other features included deposits of soil darker than the surrounding matrix, disturbed deposits of soil and cultural materials, a builder's trench, and a few postholes. The general contents of these deposits were sometimes noted in the field notes, but no additional interpretations were offered.

Only a few of these disturbances were apparently excavated separately, as indicated by the artifact proveniences (Table 7). Two of these, located in a trench along the E16 line in Sector 1 (Table 7, items 2&3), were excavated as separate units at first but were never followed to their conclusion in the field notes. These areas probably expanded into what Moran believed was a continuation of the possible "waterway," the major portion of which was excavated to the southeast (Figure 14). Milner noted the discovery of the "waterway" in the E16 trench, and Moran's profile of the feature was taken from this trench (Figure 15). The first of the E16 disturbances was recorded in the field notes as Feature 1, a "coal ash and trash area" on the north wall of unit 2E1 E16/S42.5-45 (Moran 1976c:86). The corresponding artifact provenience (Table 7, item 2) contained a wide range of artifacts, which indicated that the materials were deposited in the mid-to-late 19th century at the earliest. A similar soil "discoloration" was located in the adjacent unit to the south, also on the north wall (Table 7, item 3). This was designated Feature 2 in the field notes (Moran 1976c:50), and the artifacts which were excavated separately included whiteware and bone. The soils and artifacts from these areas were indeed similar to those reported for the upper levels of fill in the possible "waterway."

The only additional disturbances for which artifacts were retained separately were located in 2E1 E40/S42.5-52.5. Three features were designated for this unit. Feature 2 was a utility trench, and Features 1 and 3 were unidentified. Feature 1 (Table 7, item 4) was a series of very hard, dark brown lenses with stones and coal fragments, located on the south wall of the trench, which in turn was just north of a Park pathway. The field notes described the feature as similar to "road metalling" (Moran 1976c:34, 43). The few artifacts which were retained from this feature included slag, bog iron, metal fragments, a redware sherd, and prehistoric lithic flakes. No additional units were excavated to the south to further explore this feature, and its function could not be determined.

Feature 3 in the same unit was a linear feature which intersected the utility trench and contained a similar fill (Moran 1976c:34, 43). The field notes did not record the full extent of the feature's excavation, but noted that it seemed more shallow than the utility trench and did not appear to contain a utility line (Moran 1976c:43). The artifacts which were retained from this feature were some slag, whiteware sherds, glass, bone, and 21 prehistoric lithic flakes. There were no further notes concerning this feature, and while it may have been associated with the utility installation, it should be noted that it also seems to have disturbed an area of prehistoric activity.

There were several instances where postholes were recorded in the field notes but were not otherwise documented. A number of these intruded into the fill in the area of Feature 2, the possible waterway. There were no artifacts saved separately for these features, and they were probably excavated as part of the fill. The locations of these postholes were recorded on a field map, but no profile maps or other stratigraphic information were available. Their horizontal locations alone did not suggest any further interpretation. If these postholes intruded into the fill, and if the fill dated to the mid-19th century or later (Moran 1976a:12), the posts would have been installed for some undetermined function during the late 19th or the 20th century.

Two additional postholes were located east of the house in Sector 1, in units E45.5/S117.5 and E48/S120. Milner also recorded a posthole in unit E21.5/S117.5, further west towards the house. These three post sites, while roughly aligned with one another, did not appear to be associated. The posthole in unit E48/S120 was square in shape while the others were round, and there were no profiles to compare their relative top and bottom elevations.

The field notes commented on the contents of only one of these postholes, that in unit 2E2 E21.5/S117.5: a bone, a peach pit, three large pieces of brick and a bottle neck (Moran 1976c:48). The artifact collection contained materials for a "Feature Lot 2" from this unit. These materials were probably

Table 7

Previously Unrecorded Features*

Feature	Excavation Unit	Page In Field Notes	Artifact Provenience
1) Utilities:			
a) electric & telephone	2E1 E45.5/S117.5	15	-----
b) electric, water, sewer	2E2 W40/S82-85	17	-----
c) water	2E2 W36-46/S70-72.5	17	-----
d) sewer	2E2 W36-46/S70-72.5	28	-----
e) gas (Feature 2)	2E1 E40/S45-53	43, 75	Sec 2E1,E40/S42.5-52.5,Feat2
f) gas	2E1 E16/S45-53	49	Sec 2E1,E16/S45-53,Feat1 Lot2, 12-30"
g) sewer	2E2 W33.5-36/S67.5-72.5	51	-----
h) "rubber line"	2E1 E16/S55.5-58	57	-----
i) "rubber line"	2E2 W40/S58.5-65	57	-----
j) "utility"	2E1 E8/S120	40	Sec 2E1,E8/S120,Lot2, Utility Tr
k) "orangeburg pipe"	2E1 E50.5/S45	21, 36	-----
l) "iron pipe"	2E1 E55.5/S40	36,60-62	-----
2) Feature 1, Coal Ash & Trash Area	2E1 E16/S42.5-45	86	Sec 2E1,E16/S42.5-45, Feat1, Coal & Ash Area
3) Feature 2, Soil Discoloration	2E1 E16/S45-53	50	Sec 2E1,E16/S45-53,Feat2 Lot2, 14-15"
4) Feature 1, Hard Lenses	2E1 E40/S45-53	34, 43	Sec 2E1,E40/S42.5-52.5, Feat1
5) Feature 3, Trench	2E1 E40/S45-53	34, 43	Sec 2E1,E40/S42.5-52.5, Feat3; Sec 2E1,E40/S42.5-52.5, Feat3, N-S Tr

*Noted in field notes but not recorded by Moran or Milner.

Table 7 (cont.)

Feature	Excavation Unit	Page In Field Notes	Artifact Provenience
6) Postholes, "waterway" area	vicinity of 2E1 E53.5/S85	125,126	-----
7) Posthole	2E1 E45.5/S117.5	15	-----
8) Posthole	2E1 E48/S120	7	-----
9) Builder's Trench	2E1 E55.5/S40	37,41,60-62	-----
10) Feature 1, dark soil area	2E1 E48/S120	7	-----
11) Feature, dark soil area	2E1 E71.5/S105	93	-----
12) Plaster deposit	2E5 E12/S13	97	-----
13) Coal Ash, stones, & brick deposit	2E5 W12/S5	92,102	-----
14) Asphalt feature	2E3 W13/S32.5-35	108	-----

recovered from the posthole, as this was the only feature recorded for the unit. However, the artifacts from this provenience only partially matched those listed in the field notes for the posthole. There was a contact molded bottle neck and a mammal bone in the collection, but no brick fragments or peach pit, and there were additional artifacts including a prehistoric flake, whiteware, unidentified nails, and a pipe stem. If these artifacts were recovered from the posthole, the fill would date to sometime after 1820. The function of the three posts roughly aligned to the east of the house remains unknown.

Another feature which merits mention is the builder's trench associated with the stone foundation in Sector 1. The trench consisted of hard-packed yellow clay along the exterior of the stone foundation (Moran 1976c:37, 41, 60-62). A field note sketch showed the feature to be seven inches wide at its top elevation (Moran 1976c:62). If any artifacts were recovered from this feature, they were apparently not retained separately, even though the builder's trench would be an important feature for interpreting the stone foundation. In his preliminary report, Moran stated that "only a small fraction of the builder's trench was excavated with negative results" (1976a:12), suggesting that at least no chronologically diagnostic artifacts were recovered.

The remaining features and disturbances noted in the field notes were less well recorded (Table 7, items 10-14). No artifacts were retained separately for any of these proveniences. Only one of them was given a feature number in the field notes: Feature 1 in 2E1 E48/S120, an area of "dark soil" in the northwest corner of the unit (Moran 1976c:7). Other deposits included an area of darker soils across the eastern side of unit 2E1 E71.5/S105 at a depth of 16 inches below ground surface. This area was designated as a feature in the field notes, but was assigned no feature number and was not further recorded (Moran 1976c:93). This unit was excavated in search of an extension of Feature 2, the possible waterway. However, the feature was interpreted in the field notes as evidence of an earlier ground surface sloping down to the east, similar to that found in unit 2E1 E83.5/S113, and not as evidence of an extension of Feature 2.

The field notes also mentioned two features south of the house in Sector 5: a plaster deposit in the southeast corner of unit E12/S13, located from 15 to 26 inches below ground surface (Moran 1976c:97-98); and an anomalous deposit of coal ash, stones, and brick in W12/S5 (Moran 1976c:92, 102). Neither of these were further recorded. And finally, in Sector 3 west of the museum building, an "asphalt feature" was noted at 13-14.5 inches below the ground surface. A sample of the asphalt was retained, but no further interpretation was offered (Moran 1976c:108).

In summary, Table 7 provides a listing of miscellaneous historic features which were recorded in the field notes but were not reported on by either Moran (1976a) or Milner (1978). These were all minor features, many of which were caused by the installation of 20th century utilities on the site. Others included disturbed soils which eventually were tied in to other major features (Table 7, items 2&3), or which were not fully documented and remain uninterpreted. Although soil anomalies were found in units excavated in search of Feature 2 extensions, no evidence of a possible waterway was discovered. Postholes were recorded for the area of the possible "waterway," as well as east of the house in a general east-west alignment. The function of these posts could not be determined, although those postholes which contained diagnostic artifacts appeared to have been filled no earlier than the 19th century.

Artifacts were retained for very few of these miscellaneous features, as noted in Table 7. Presumably the other features were excavated as part of the surrounding soil matrices. Such field methodology presents a problem for the interpretation of the features themselves as well as the general stratigraphic deposits on the site. Although none of these features offer valuable interpretive information, the above summary should provide clarification of the collection's rather confusing artifact proveniences and of the field notes.

There were also two features which were drawn on Milner's map of historic features for which there were no artifacts. The first was located in unit 2E2 W40/S58.5-65, and consisted of bricks laid on end in a circular feature. The original field map for this unit also indicated the presence of a metal cap in the center of the brick circle. Neither Moran nor Milner mentioned this feature. Judging from the location of an adjacent sewer pipe, this feature no doubt served as a cesspool, the presence of which was noted by Moran in a record of a discussion with Edward Guy. This discussion has been reproduced as Appendix 8. Guy reported that an "old well" located 15 feet south of the cherry tree near the museum had been converted into a septic tank, and this was the approximate location of the feature (Orville Carroll, personal communication 1988). The date of this former well is not known.

The second unidentified feature drawn on Milner's map was a semi-circular row of bricks laid on end, located just north of the former lean-to foundation. This feature appeared in photographs to have been roughly on level with the current ground surface, and was described in the field notes as the brick edging of a gravel walk (Moran 1976c:69). Thus in spite of its visual association with the lean-to foundation on Milner's feature map and the ACMP composite map (Figure 14), the bricks were actually at a higher elevation and were part of a completely different, modern feature.

Feature 1, The Stone Foundation: The eight foot square dry-laid stone foundation, located in the vicinity of grid point 2E1 E48/S40, was one of the two major features discovered during the 1976 excavation (Figures 14 and 17). Both Moran and Milner discussed this feature, but neither could determine its date or function, other than that it was filled during the mid-19th century (see Prior Research Results). Given the minimal horizontal and stratigraphic controls maintained during the feature's excavation, there were few approaches to the feature's analysis. However, the artifact collection contained some additional data which allowed for at least some more specific observations, leading the ACMP to arrive at a different conclusion regarding the date of the fill.

The collection contained artifacts from most of the units excavated in the immediate area of the foundation (Table 8). The intra-unit proveniences reflect those which were originally assigned by the excavators, which may at times indicate inconsistent labelling rather than actual provenience separations. For the purpose of this analysis, the ACMP evaluated each provenience and determined which represented the same general stratigraphic deposits (Table 8).

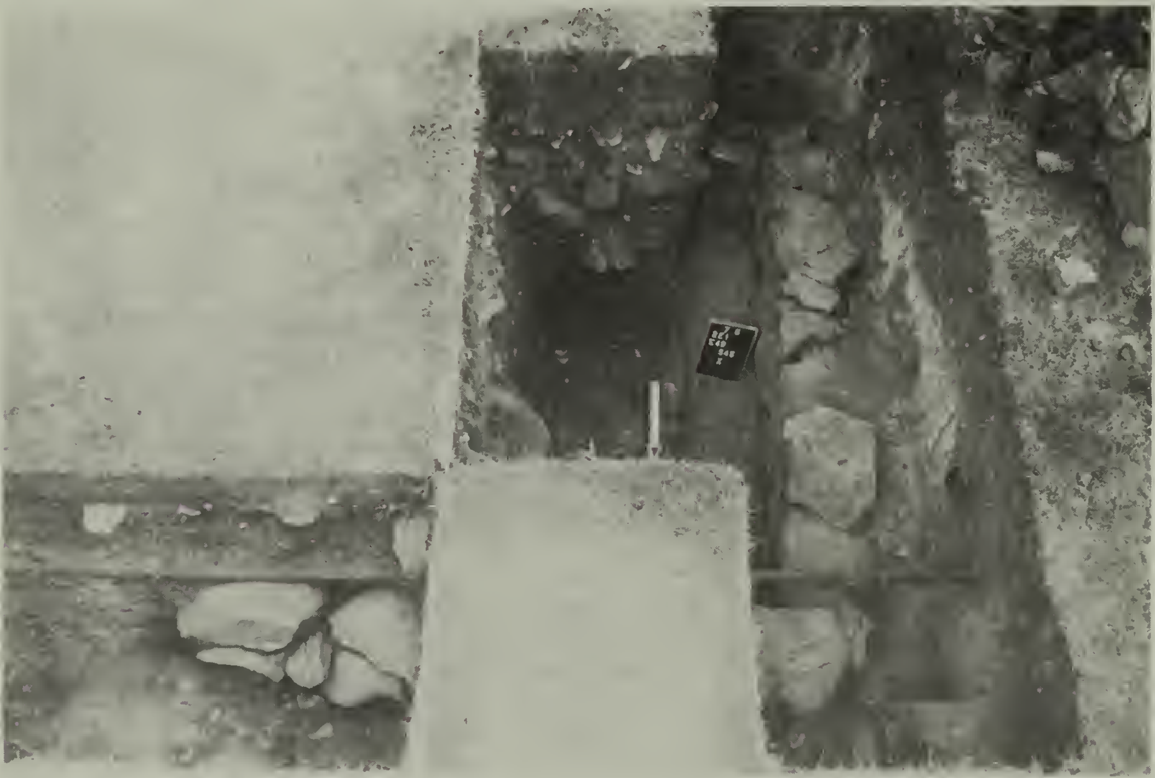


Figure 17. Moran's excavation photograph of Feature 1, the stone foundation, looking south (Catalog # SAIR 9482).

Table 8

Artifact Proveniences for Feature 1, the Foundation

Deposit	Proveniences (Sec 2E1)
Part interior fill/part foundation/part exterior soils	E48/S40: L 1 L 2 L 2, 18" L 2, 20" Feat 1 L 3
	E48/S42.5: Feat 1 L 1 L 2 Feat 1 L 2 Feat 1 L 3
	E48/S45: Feat 1 Feat 1 Lot 1 Lot 1 Feat 1 L 2 Lot 2 Feat 1 Lot 3 Feat 1 L 4 Feat 1 L 5 Feat 1, Floor Sample
	E48/S47.5: Lot 1 Lot 2 Feat 1, L 3 Feat 1, L 4
Interior Fill only	E50.5/S42.5: Feat 1 L 3 Feat 1 L 4 Feat 1 L 5
	E50.5/S42.5-45: L 1 L 2 Feat 1 L 2 L 3 Feat 1 L 3
	E50.5/S45: Feat 1 L 4 Feat 1 L 5
Exterior soils only	E53-55.5/S40: L 1 L 2 Feat 1 L 3

Table 8 also identifies those proveniences which were excavated entirely within the interior fill of Feature 1, as opposed to those which represented multiple deposits (a portion of the feature, the builder's trench, and the soils to the exterior of the feature). In the latter case, these very different deposits were not excavated separately, resulting in the mixing of artifacts from the fill with artifacts from stratigraphic deposits outside the foundation.

Nonetheless, the various horizontal and stratigraphic deposits in the foundation area show some interesting trends. It should be noted that Moran provided no analysis of recovered materials in the preliminary report, other than to generally date the fill to the mid-19th century (1976a:12). Milner provided a functional analysis of the feature using the total artifact counts for all units and all strata in the area of the foundation (see Prior Research Results). The analysis thus combined the artifacts from the interior feature fill and the exterior soil strata. Presumably the underlying assumption was that all soils in the area, including the fill, were related to the function of the foundation. This is a rather broad assumption, as the fill may not have been a primary deposit, and the soils to the exterior of the foundation may have been deposited both before and after, as well as during, the structure's use.

The ACMP analysis of the feature thus required a more specific look at the materials from different strata in the feature fill as well as those from different strata to the exterior of the foundation. Although many of the units were excavated along the foundation itself and included soil deposits from both inside and outside the foundation, there were a few units excavated exclusively within the foundation fill or in the soils exterior to the foundation (Table 8). These latter were the most reliable units for analysis, as they did not contain mixed deposits. Each of the units was excavated in stratigraphic levels, presumably the 10 inch arbitrary levels specified in the field methodology. Five levels were excavated in both the units inside the foundation and in those straddling the feature, and three levels were excavated outside the foundation (Table 8).

Looking first at the stratigraphic profile available in the original field materials, it appeared that the upper two levels excavated (i.e., the upper 20 inches of soil) in all the foundation area units represented a soil deposit which overlay the foundation and its fill. The ACMP reproduced this profile from the original field draft, including the original soil descriptions (Figure 18). This upper deposit was shown as two strata: the humus and sod level, and an underlying level of similar loamy soils with a greater artifact content. Two modern utility lines were also located at the base of this deposit. Beneath the loamy deposits was a completely different set of deposits. The stone foundation contained a fill described as

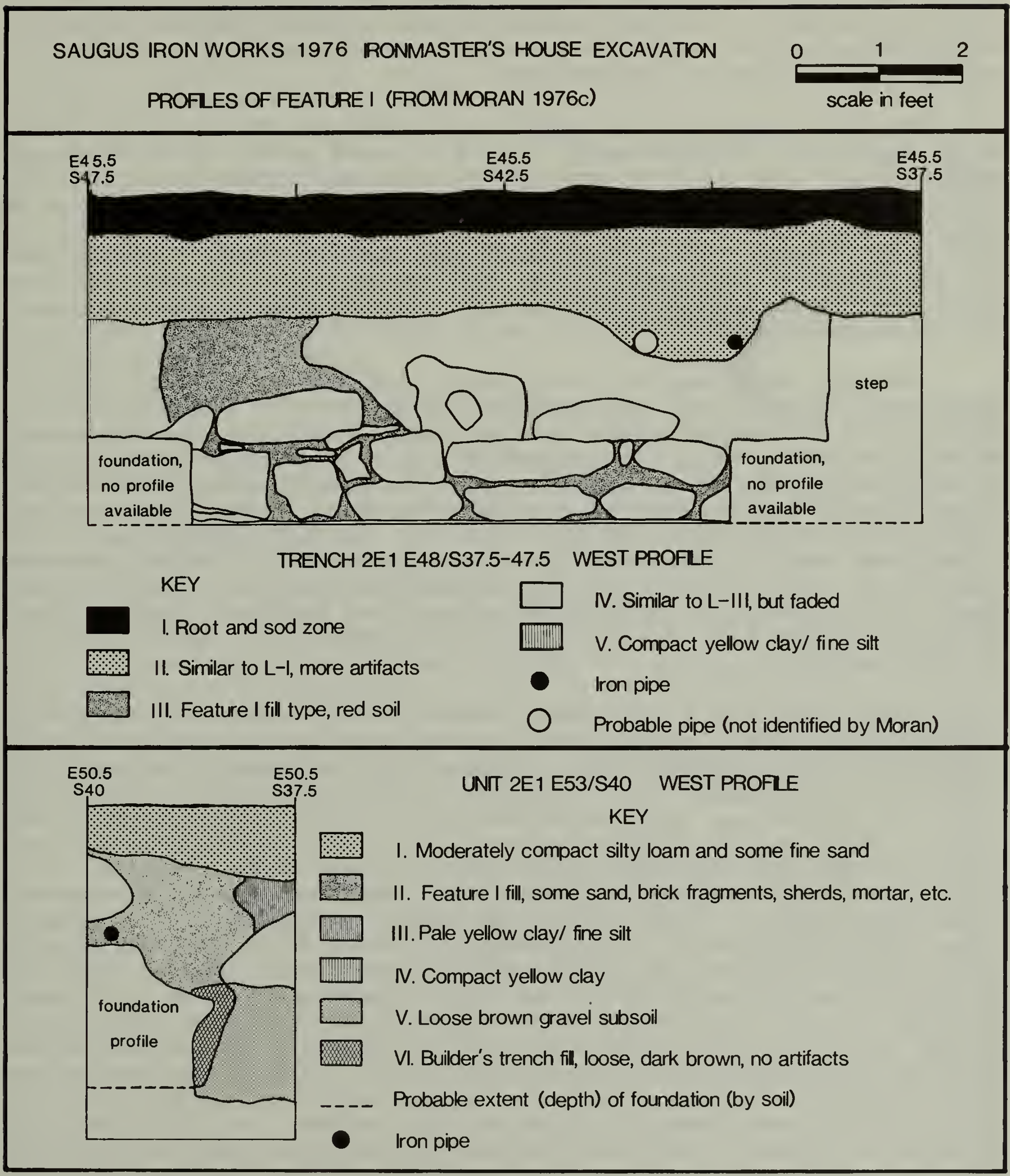

SAUGUS IRON WORKS 1976 IRONMASTER'S HOUSE EXCAVATION
PROFILES OF FEATURE I (FROM MORAN 1976c)
0 1 2
scale in feet
E45.5 S47.5
E45.5 S42.5
E45.5 S37.5
step
foundation, no profile available
foundation, no profile available
TRENCH 2E1 E48/S37.5-47.5 WEST PROFILE
KEY
I. Root and sod zone
II. Similar to L-I, more artifacts
III. Feature I fill type, red soil
IV. Similar to L-III, but faded
V. Compact yellow clay/ fine silt
Iron pipe
Probable pipe (not identified by Moran)
E50.5 S40
E50.5 S37.5
foundation profile
UNIT 2E1 E53/S40 WEST PROFILE
KEY
I. Moderately compact silty loam and some fine sand
II. Feature I fill, some sand, brick fragments, sherds, mortar, etc.
III. Pale yellow clay/ fine silt
IV. Compact yellow clay
V. Loose brown gravel subsoil
VI. Builder's trench fill, loose, dark brown, no artifacts
Probable extent (depth) of foundation (by soil)
Iron pipe

Figure 18. Profiles of Feature 1, the stone foundation, along transect 2E1 E48 and 2E1 E53 (from Moran 1976c).

mixed reddish brown silty soil and compact yellow clay or fine silt, with the exterior deposits consisting of a coarse yellow sterile subsoil. The builder's trench adjacent to the exterior of the foundation contained a loose, dark brown fill (as noted on the original profile, Figure 18).

The profile suggests that the upper ca. 20 inches of soil were deposited independently of and at some point later than the destruction and filling of the foundation, possibly during the various landscaping activities that have occurred on the site (Brown 1975:20-24), as well as during the installation of utilities. This in turn suggests that Levels 1 and 2 should not be included in the analysis of the foundation. Levels 3-5, on the other hand, appear to be a part of the disturbances related to the foundation.

Indeed, when the artifacts were tallied by provenience for the units inside the foundation (E50.5/S42.5, S42.5-45, S45), Levels 1 and 2 contained a distinctively different assemblage of materials from Levels 3-5 (Appendix 9). The most diagnostic 19th century materials (such as whiteware, Rockingham/Bennington ware, 19th century contact molded bottles, and wire as well as late cut nails) were contained only in the Level 1 and 2 assemblages. One bottle in Level 1 was made in a two-piece mold with a separate base part, and provided one of the most diagnostic terminus post quem dates (TPQ) at post-1850 (Jones and Sullivan 1985:28-29). Level 1 in fact contained an assemblage of 29 whole contact molded bottles.

Levels 3-5, on the other hand, contained few diagnostic materials but did include some earlier items and no definite 19th century items (Appendix 9). Diagnostic materials included tin enamelled and combed ware ceramics, both diagnostic of the 17th and 18th centuries, and freeblown glass, also in use during that time. More specific items included a latten spoon bowl of late 17th or 18th century manufacture in Level 4. Level 5 contained a pipe bowl with either a post-union Queen Anne or a Hanoverian armorial design, which dated to either 1701-1714 or 1714-1801 (Noel Hume 1980:306). Although most of the diagnostic artifacts from these levels were pre-19th century materials, Level 5 contained one sherd of transfer-printed pearlware, and both Levels 3 and 5 contained an indeterminate machine cut nail. These three objects, if they did not result from contamination during excavation, would give a TPQ of ca. 1790 for the interior fill deposits. However, later materials were noticeably lacking, such as the whitewares which are so common on 19th century domestic sites, and which also accounted for the largest percentage of ceramics from the Level 1 and 2 assemblages. While the absence of material types cannot be a primary dating tool, it does provide an additional form of evidence, in this case negative evidence.

Thus the combined evidence of soil profiles and artifact presence or absence suggested that the structure was filled during the 18th century or at the turn of the 19th century. At a later date, a thick layer of loamy soils containing later 19th century materials was deposited across the area. This layer appeared to extend to other areas of the site as well, as exhibited in the profile for Feature 2, located south of the foundation (Figure 15). It may have resulted from, or been affected by, the multiple landscaping activities on the site. The loam may even have postdated the installation of utilities, which were located at the bottom of the stratum, although the utilities may also have intruded through the deposit and this distinction in soil deposition was simply not recorded by the excavators. In any case, the loamy soils appeared to be a separate and later deposit from the soils associated with the foundation and its fill.

The units which were excavated along the foundation itself were not as reliable for analysis purposes, as the soils from inside and outside the foundation walls were not excavated separately (2E1 E48/S40, S42.5, S45, and S47.5). In spite of this mixing, there were similarities in the composition of the artifact assemblage to the assemblage from the interior units discussed above. While Levels 1 and 2 contained large quantities of artifacts as well as substantial amounts of 19th century materials, Levels 3-5 contained fewer materials and fewer diagnostic items (Appendix 9). Part of this was due to the fact that a Level 4 was excavated in only two units, and a Level 5 in only one unit. Nonetheless, Level 3, which was excavated in all four units, also contained fewer diagnostic materials than Levels 1 and 2, and few 19th century artifacts. Thus although the artifacts represented both interior and exterior deposits, these units also show a similar trend to those excavated exclusively within the fill.

The unit which was excavated adjacent to but entirely outside of the foundation (2E1 E53-55.5/S40) contained only three levels and few diagnostic materials (Appendix 9). Levels 1 and 2 contained some 19th century items (e.g., whiteware sherds), but Level 3 contained only bone and prehistoric lithic flakes. These materials did not provide added interpretive information for the foundation, but did at least provide information on the general stratigraphy of the area. They indicated that Levels 1 and 2, which were presumably also 10 inch levels composing the overlying loamy stratum, were the major artifact-bearing levels; and Level 3, which was in the same stratigraphic position as the foundation, may have been the only remaining stratum outside the foundation which was not disturbed by later landscaping or other activity in the feature area. The precise associations between the foundation and the exterior deposits would thus be difficult to define, as most of the original deposits may have been disturbed. This would prevent future excavators from determining when the foundation was constructed in regard to the soil strata which were disturbed during the construction process. However, it may also be that the original excavation controls were not adequate for the recovery of such information, and future excavation could certainly reveal a more well defined sequence of events. In conjunction, further excavation of the builder's trench, only a part of which was discovered in 1976, could potentially reveal more about the feature's construction date. According to the original field map, the section of builder's trench which was excavated contained a dark brown fill with no artifacts.

In regard to feature function, the artifacts from the foundation area did not provide any interpretive information. It is unlikely that the fill deposits were primary deposits containing materials related to activities in the structure. This is supported by the fact that prehistoric materials were found throughout the feature fill, indicating secondary deposition. It may be that the fill originated from areas near the foundation, and that these soils were simply pushed into the cellarhole following the destruction of the building. Moran reported that the fill contained a large quantity of large stones and bricks, presumably part of the demolished structure (1976a:12). Unfortunately, none of the bricks or brick fragments were saved, which might have provided some additional chronological information about the structure.

The only information which may be pertinent to the function of the structure was provided by one of the artifact proveniences from unit 2E1 E48/S45. Labelled "Feature 1 Floor Sample," this provenience contained two large pieces of slag. Presumably these were excavated from the floor of the feature, which otherwise was described as "a hard-packed earth floor" (Moran 1976a:12), and in the field notes as "extremely compact" (Moran 1976c:74; emphasis in original). The field notes never mentioned the presence of slag on or in the compact earth floor, but it is possible that this "floor sample" represents a larger quantity of slag that was somehow associated with the structure. In fact, additional iron was recovered from the floor as part of the "Floor Sample." These items were unfortunately discarded during Milner's inventory, and little is known about them other than what was recorded on the inventory sheet as "Floor Sample Iron Refuse-iron" (Table 4). It is known from Cummings' documentary research that a brick kitchen and adjacent smith's shop were located in the yard of the Iron Works house during the early 18th century (Appendix 7, Structure #27), and it is tempting to associate the slag and discarded "iron refuse" with the activities in one of these structures, either a smith's forge or a kitchen's fireplace. However, it was not possible to do so given the limited evidence available and the lack of field notes further describing the excavation discoveries. Much of the foundation and the surrounding area were left unexcavated, and could be investigated further in the future.

In summary, although the function of the foundation could not be determined, it appeared that the feature was filled during the 18th century or at the turn of the 19th century, an earlier date than that proposed by the previous researchers. It was therefore probably in use during the 18th century and possibly earlier. Cummings' documentary research (1975) noted the presence of several shops and outbuildings in the vicinity of the Ironmaster's House through time (Appendix 7). The 18th century structures included two barns, a brick kitchen with adjacent smith's shop, and a shoemaker's shop. The shoemaker's shop was located on a parcel "in front of the house" (Appendix 7), presumably to the south of the house and not in the area of Feature 1. A carpenter's workshop and corn barn were constructed somewhat later, before 1809, but at least the former stood until the 20th century. The barns, the brick kitchen, and the smith's shop were thus the only 18th century structures for which Cummings found reference in the vicinity of the Ironmaster's House.

Citing "the large number of bricks" in the fill, Moran was tempted to interpret the foundation as the remains of the brick kitchen, but was rightly reluctant to do so due to the lack of functional data in the collection (1976a:12). However, if the evidence from the foundation as presented above by the ACMP correctly associates the feature with 18th century activities, it could well represent the remains of one of the structures referenced in the historic documents, including the possibility of the brick kitchen and adjacent smith's shop. Caution must be taken in making an absolute interpretation, however, as historic documents do not necessarily record all structures present on a property at any one time, and moreover, the evidence from the 1976 excavation is suggestive at best. It is recommended that additional excavation be undertaken if this feature is of interpretive interest. As Milner's report emphasized in 1978, any future excavation must employ tighter horizontal and stratigraphic controls if features such as the stone foundation are to be better interpreted.

Feature 2, the Possible "Waterway": The second major feature located during the 1976 excavations was found in the vicinity of grid point 2E1 E53/S77.5. The feature extended into numerous excavation units, and measured up to ca. eight feet in depth (Figures 14, 15). Both Moran and Milner believed this feature to be the remains of an earthen waterway or canal which carried water to power Joseph Jenks' industrial operations. They also proposed that Feature 2 was an extension of a similar feature discovered in the 1950s to the northwest during Robbins' excavations (see Prior Research Results).

The ACMP analysis of this feature was more difficult than the analysis of Feature 1 due to the lack of excavation controls in the Feature 2 area. The artifact proveniences from the area were very confused, and large portions of the excavation were completely unaccounted for. Either no artifacts were collected from much of the area, particularly the large excavation block on the eastern side of the feature, or the artifacts were mixed with other proveniences. In addition, those proveniences which were represented in the artifact collection were inconsistent in terms of the depths noted for excavation levels. For example, Lot 2 was designated for different deposits at different depths: 10"+, 11-12", 12-30", 14-15", 9-14", 10-43", 11-22", etc. Such different designations were given within the same excavation unit as well as between different units (Table 9). At other times, no depth measurements were noted at all. The result of such discrepancies was that the stratigraphic levels were not always comparable, preventing confident stratigraphic analysis.

Several stratigraphic profiles were available for trenches excavated in the feature area. These have been reproduced as Figures 15, 21, and 23. These three profiles were from a broad horizontal area, from north-south transects E16, E38, and E48, spanning a total of 32 meters from west to east. Moran believed that the anomalies in these trenches represented portions of the same feature. On each of these profiles, it was apparent that a layer of loam overlay the feature itself, as was the case for the Feature 1 area. This layer ranged from approximately 6 inches to 1.5 feet in depth. The materials from this layer should not be used in the analysis of the feature, and thus at least Lot 1 artifacts must be excluded. Portions of Lot 2 may also have been associated with this overlying loam level, but it was not possible to determine this due to the lack of excavation controls. Although the feature measured up to 7.5 feet in depth, a third level was assigned in only one excavation unit (E48/S77.5). Thus Level/Lot 2 must have sometimes spanned up to nearly seven feet in depth.

In spite of these provenience problems, it seemed worthwhile to look at the artifact data available from the feature. Level/Lot 1 materials were not included, as these most likely came from the overlying loamy stratum. Generally speaking, the artifacts from Level 1 proveniences contained relatively large quantities of artifacts, and many 19th century materials. One of the most specific diagnostic artifacts from a Level 1 deposit was a maker's mark dating to 1882-1898 (E16/S45-53, Lot 1). The assemblage from the Level 1 deposits resembled those from the Level 1 deposits in the Feature 1 area, which were also recovered from the humus stratum overlying the feature area. This overlying loamy stratum appears to have been laid across a large portion of the site area, and is unrelated to the features in the lower strata.

The feature itself was thus best looked at by using all Lot/Level 2 proveniences, in spite of their wide ranging discrepancies in elevation (Table 9). Two additional proveniences from the "rubble" or "rock" fill were also used, as well as the single Lot 3. There were a total of 26 such proveniences from various excavation units, all of which were located on five north-south transects in Sector 1: E16, E38, E48, E53, and E58 (Figures 8, 14). For the most part, these units formed long trenches. Some of these proveniences were located entirely within the confines of the feature area, while others spanned the feature and the exterior soils as well (Table 9).

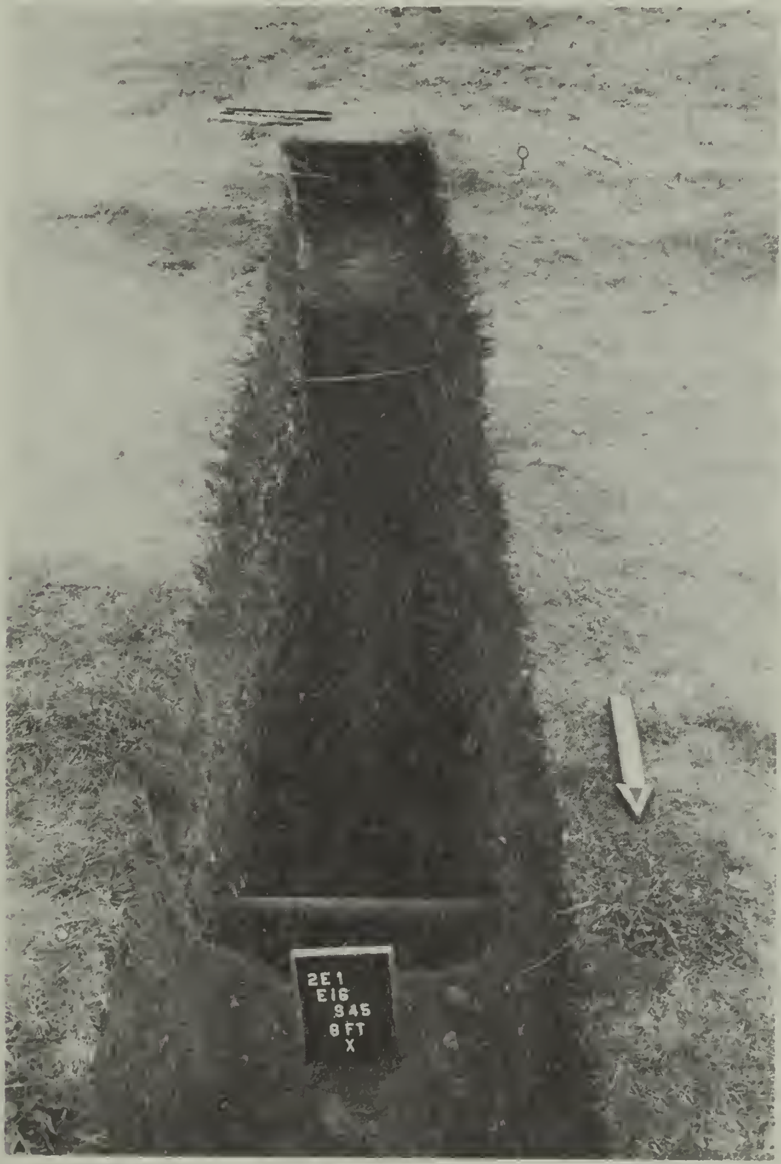


Figure 19. Moran's excavation photograph of Feature 2, the possible waterway, along transect 2E1 E16 (Catalog # SAIR 9482).

Table 9

Artifact Proveniences for Feature 2, the Possible Waterway

Provenience (Sec 2E1)	all in feature	part in, part out of feature	possibly below loam stratum
E48/S72.5-77.5, Feat 1, Lot 2, 42"	X		X
E48/S75, L1	X		
E48/S77.5, Feat 1 Lot 1	X		
Feat 1 Lot 2, 26"+	X		X
Feat 1 Lot 3, 4'10"	X		X
Feat 1, Rock Fill	X		X
Lot 1	X		
Lot 1, 8"	X		
E48/S80, Feat 1 Lot 1	X		
Feat 1 Lot 2, 10-11"	X		X
L1, 0-8"	X		
Rubble Fill	X		X
E48/S82.5, Lot 1	X		
Lot 2	X		X
E48/S85, Lot 1	X		
Lot 2	X		X
E48/S87.5, Lot 1		X	
Lot 2		X	X
E53/S72.5-77.5, L2	X		X
E53/S75, L 1, 0-14"	X		
E53/S77.5, L 1	X		
L 2, 10"+ Below	X		X
L 2, 11-12"	X		X
E58/S79.5-85, L 1		X	
E58/S80-85, Lot 1		X	
Lot 2		X	X
Lot 2, TR		X	X
E16/S42.5-45, Feat 1, Coal & Ash Area	?	?	?
E16/S45-53, Feat 1 Lot 2, 12-30"	(intrusive gasline trench)		
Feat 2 Lot 2, 14-15"	(disturbance north of feature)		
Lot 1		X	
Lot 1, 12-15"		X	X
Lot 2, 12-15"		X	X
Lot 2		X	X
E16/S45-63		X	
E16/S55.5-58, Lot 1, 0-9"	X		
Lot 2	X		X
Lot 2, 9-14"	X		X
E16/S55.5-63, Lot 2, 10-43"		X	X
E16/S58-63, Lot 1		X	

Table 9 (cont.)

Provenience (Sec 2E1)	all in feature	part in, part out of feature	possibly below loam stratum
E38/S70-72.5, Feat 1 Lot 2	X		
E38/S70-75, Feat 1 Lot 2, 11"-22"	X		X
E38/S70-77.5, Feat 2 Lot 1	X		
Feat 2 Lot 2, 48"	X		X
E38/S72-75, Feat 1 Lot 2, 13"	X		X
E38/S75, L 1	X		
E38/S77.5, Lot 1, 0-12"	X		
Lot 2, 12-14"	X		X
Lot 2, 18"	X		X

A long trench was excavated along transect E16 (Figure 19), and artifacts were available for a few proveniences inside the feature as well as a few which straddled the feature and the exterior soils. The overlying loamy stratum in this area was fairly deep, measuring up to 1.25 feet thick (Figure 15). Thus the proveniences labelled Lot 2, especially those with depths designated as 9-14" and 12-15", may reflect a portion of the upper loamy strata. These proveniences did include a number of 19th century materials, such as whiteware, Rockingham/Bennington ware, yelloware, and domestic stoneware, as well as a fairly broad range of other less diagnostic artifacts (Appendix 10). The only provenience which could be definitely associated with soils deeper than the overlying loamy deposit was 2E1 E16/S55.5-63, Lot 2, 10-43". This contained only six artifacts, four prehistoric flakes, one indeterminate nail, and an indeterminate metal fragment. Assuming that this actually reflected the recoveries from the feature, it is striking that so few artifacts were present, and that only prehistoric lithics and metal objects were represented. It may be that this assemblage more directly reflects the artifactual contents of the feature in the transect E16 area.

The feature was also located in the trench along the E38 transect line, and all proveniences from S70-S77.5 fell within the confines of the feature (Figure 20). The loamy stratum inthis area measured approximately 10 inches deep (Figure 21), which would compare well with an arbitrary 10 inch Lot 1. The assemblages from Lot/Level 2 of these units were distinctive from those along E16 (Appendix 10). There were few artifacts generally, and other than one sherd of indeterminate glass, they included only metal, prehistoric lithics, some shell, and a small amount of brick. This was similar to the assemblage from lower levels of the E16 units, except that the metal from E38 was primarily slag. There were three machine cut nails, 1,324.1 grams of slag, and 13.1 grams of bog iron. While this was not a

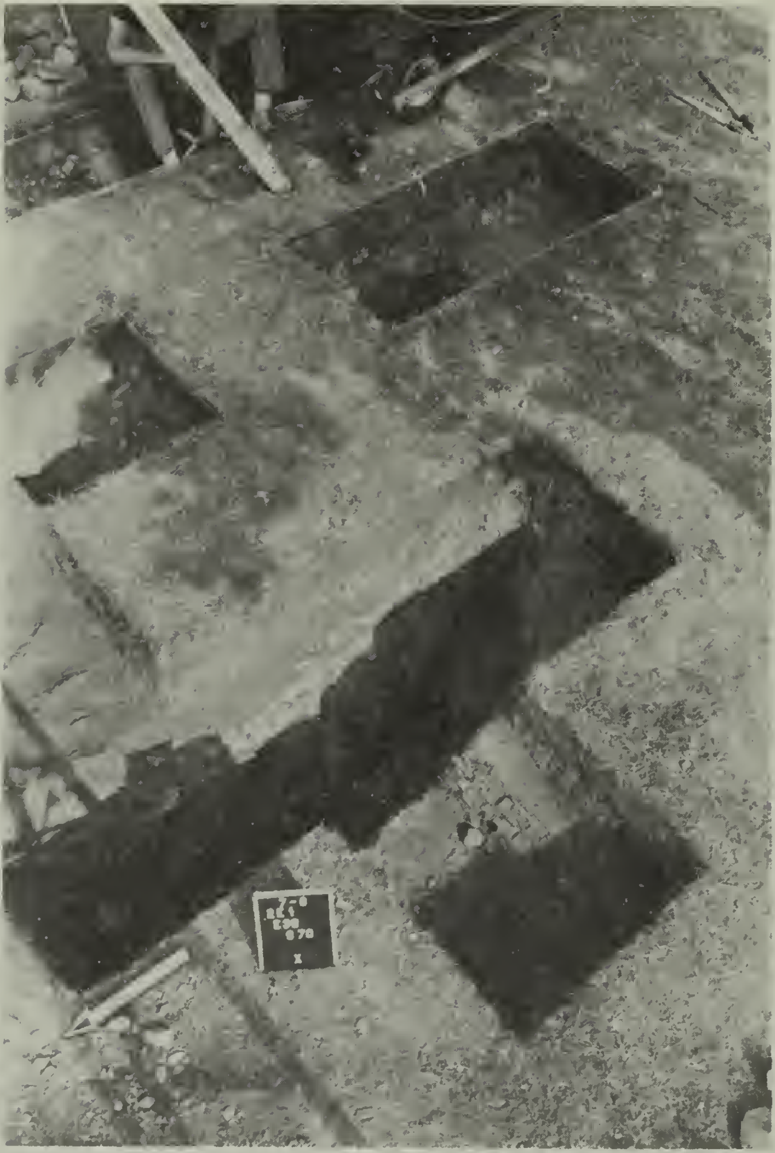


Figure 20. Moran's excavation photograph of Feature 2, the possible waterway, along transect 2E1 E38 (Catalog # SAIR 9482).

large quantity of slag, its presence in the assemblage was distinctive.

In the E48 transect area, there were a number of proveniences which were excavated as a trench within the confines of the feature (Figure 22), including a Lot 3, and "rock" and "rubble" fill areas (Table 9). The partial profile from E48 shows only a six inch layer of loamy humus overlying the feature, which was much less than the depth of this stratum in the E16 and E38 areas. The feature also appeared to be deeper in this area, and between coordinates S75 to S83 contained a different fill

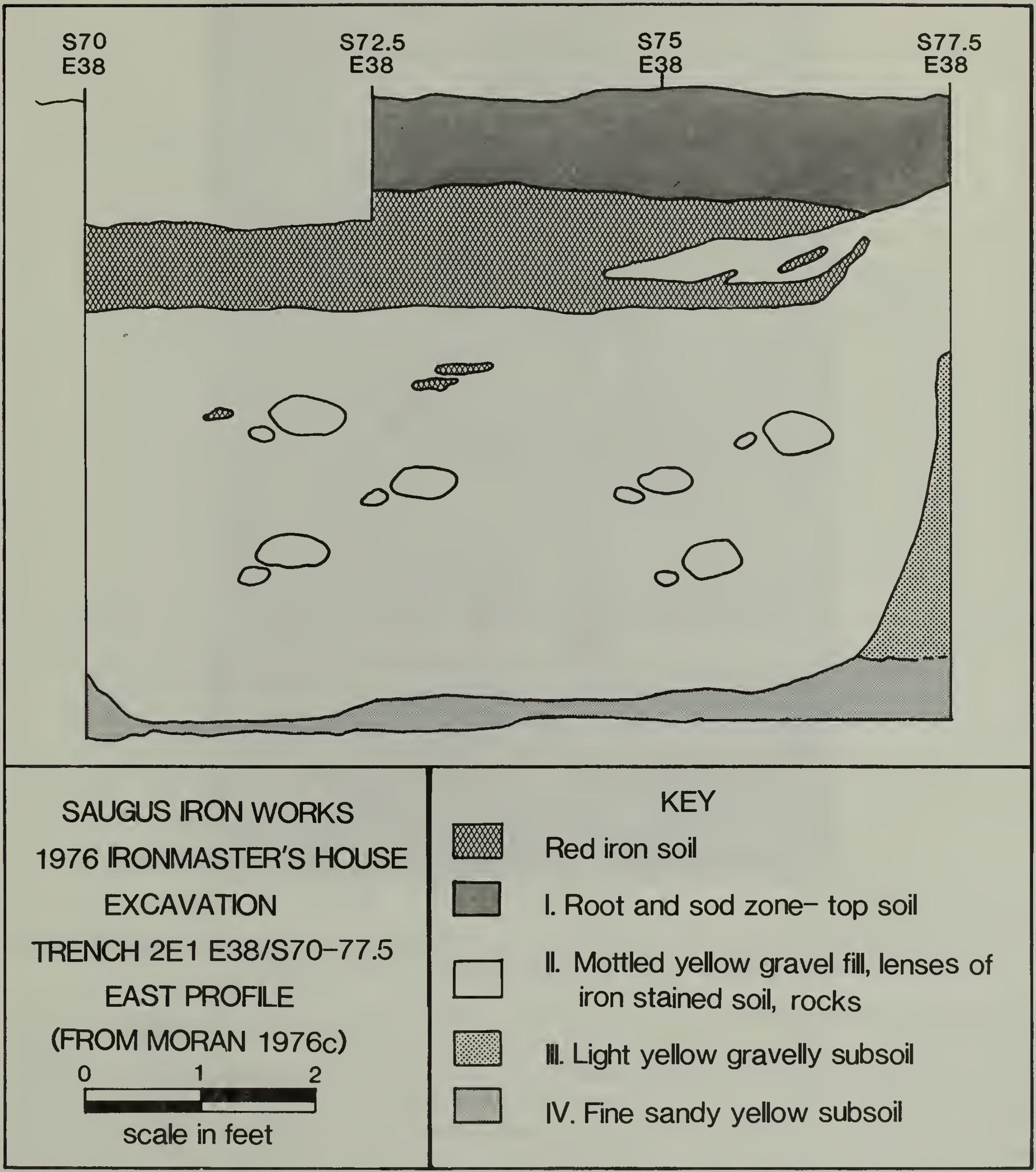

S70
E38
S72.5
E38
S75
E38
S77.5
E38
SAUGUS IRON WORKS
1976 IRONMASTER'S HOUSE
EXCAVATION
TRENCH 2E1 E38/S70-77.5
EAST PROFILE
(FROM MORAN 1976c)
0
1
2
scale in feet
KEY
▩ Red iron soil
■ I. Root and sod zone– top soil
☐ II. Mottled yellow gravel fill, lenses of iron stained soil, rocks
▨ III. Light yellow gravelly subsoil
▧ IV. Fine sandy yellow subsoil

Figure 21. Profile of Feature 2, the possible waterway, transect 2E1 E38 (from Moran 1976c).

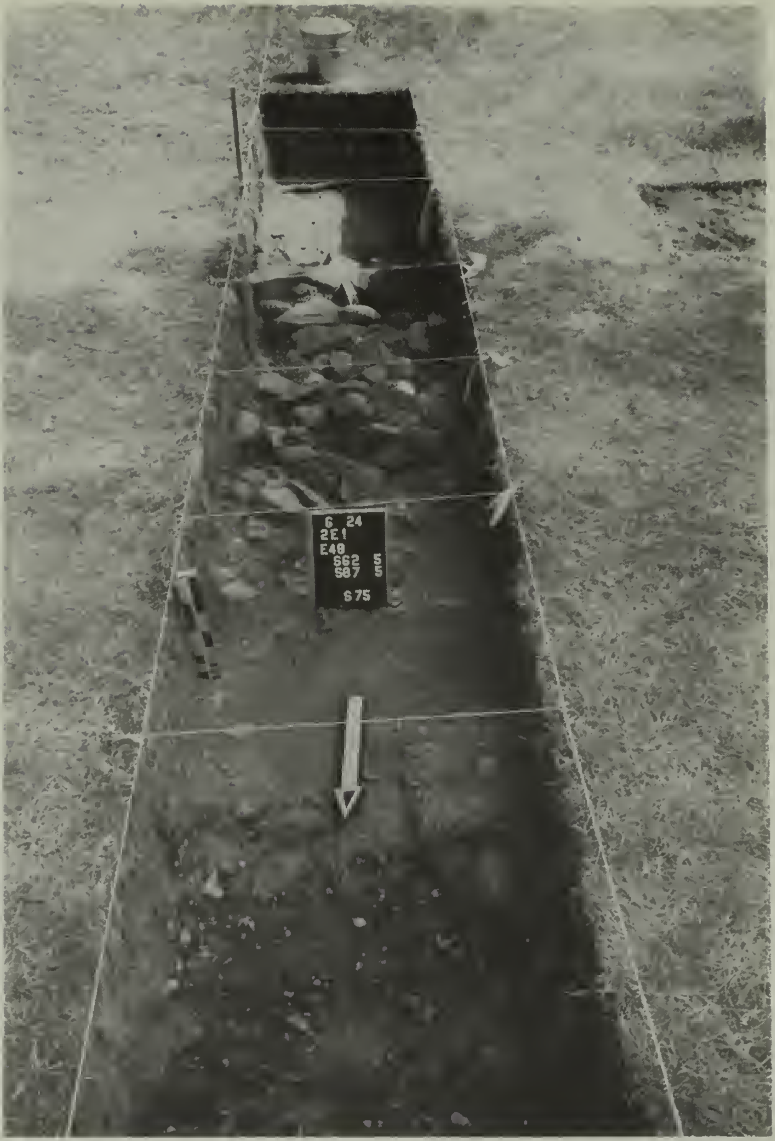


Figure 22. Moran's excavation photograph of Feature 2 area along transect 2E1 E48 (Catalog # SAIR 9482).

composed of large stones, brick, and some mortar (Figures 23 and 24). The proveniences included a variety of ceramic types, including some early wares that were not present in the assemblages from the E16 and E38 trenches (Westerwald stoneware, white salt-glazed stoneware, and Astbury ware). Some later materials were also present, all from proveniences at the southern end of the trench (S82.5-87.5). Otherwise the assemblage contained a few glass sherds, including freeblown glass; a few hand wrought and machine cut nails; a relatively large number of bone fragments; prehistoric lithics; and other miscellaneous items (Appendix 10).

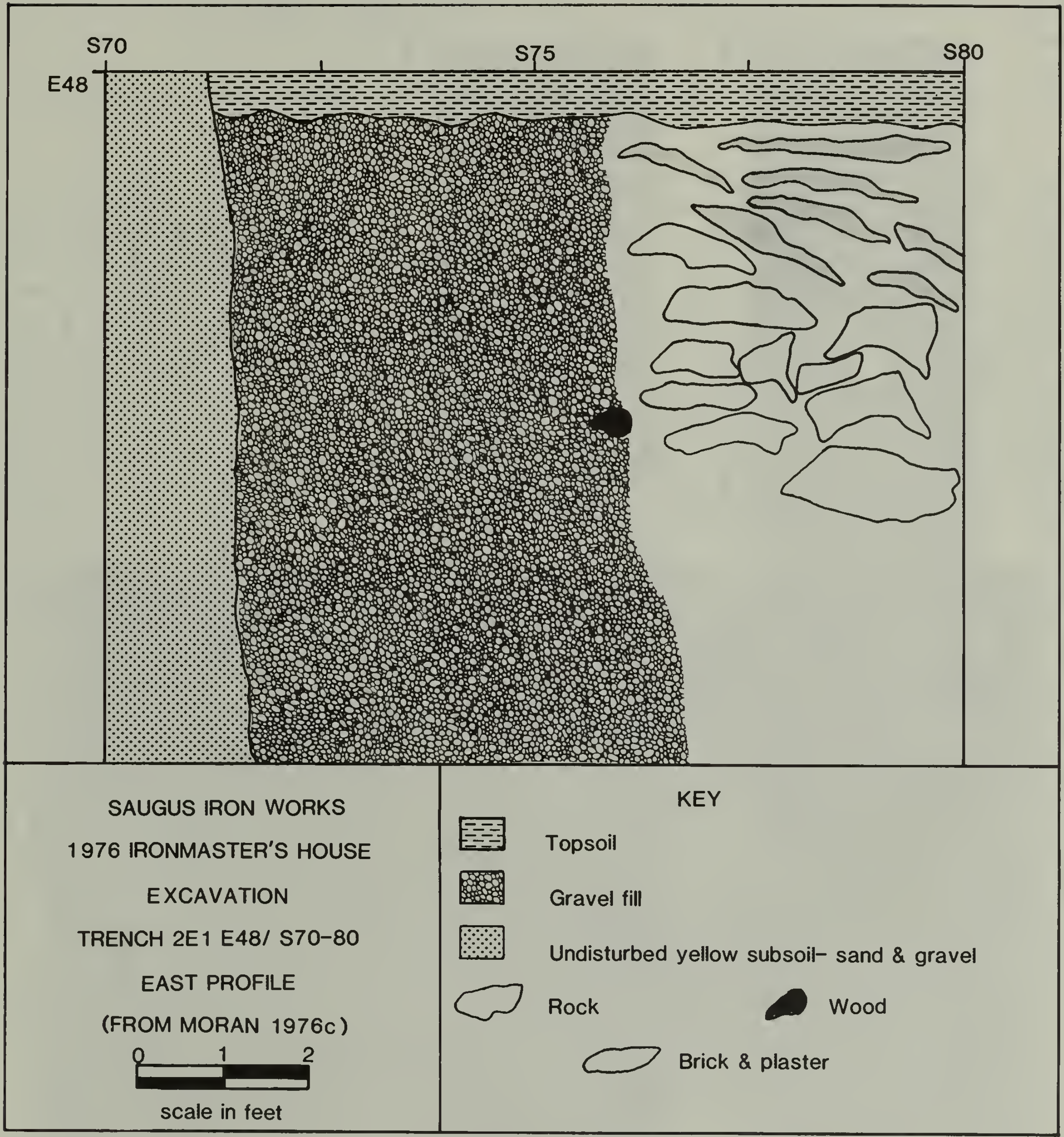


Figure 23. Profile of Feature 2, the possible waterway, transect 2E1 E48 (from Moran 1976c).

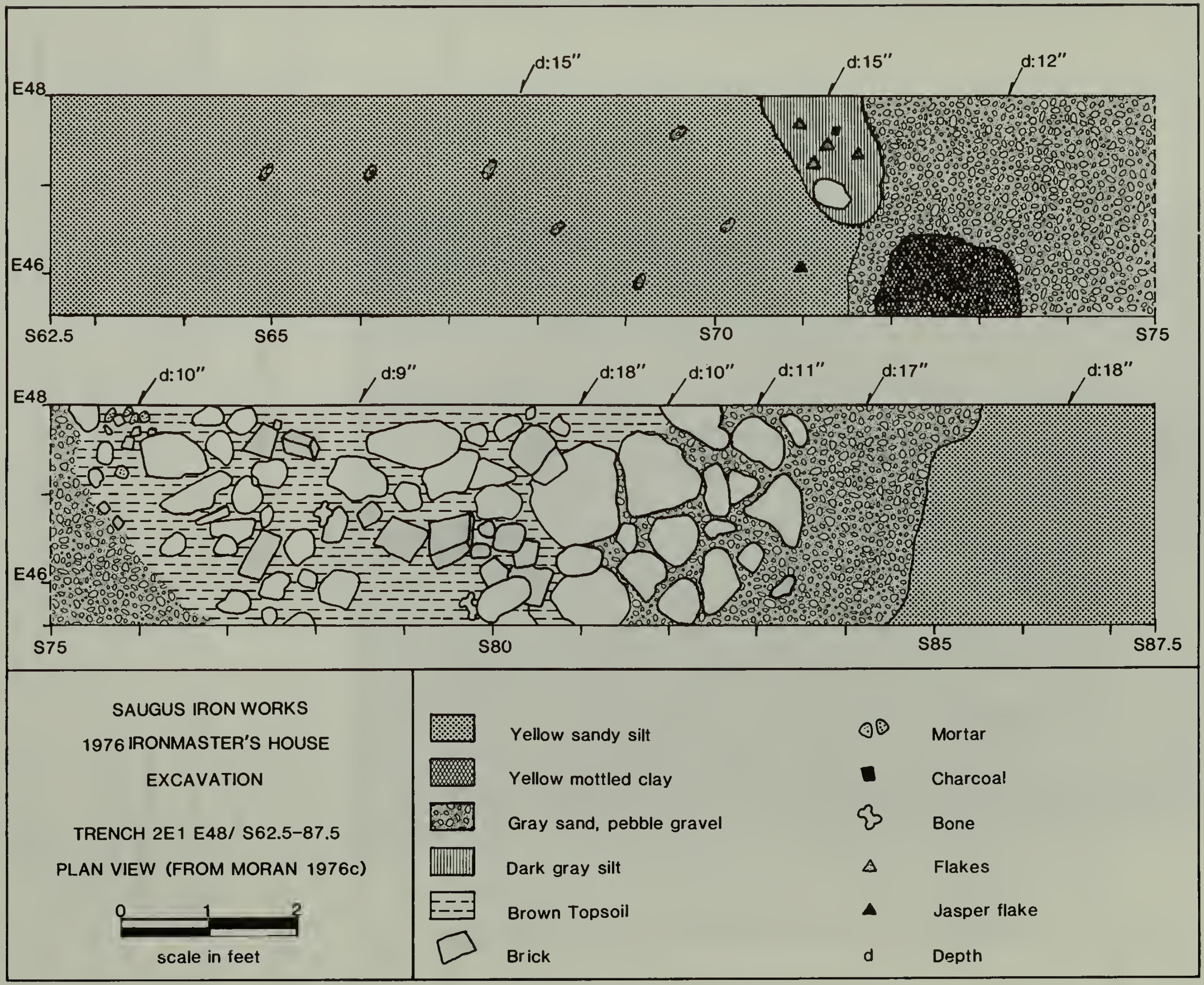


Figure 24. Plan of trench 2E1 E48/S62.5-87.5, showing variable soils and rubble area (from Moran 1976c).

The remaining artifact proveniences which were at least partially within the feature area were E53/S72.5-77.5, E53/S77.5, and E58/S80-85. These proveniences represented a very small portion of the area which was actually excavated, and contained very few artifacts (Appendix 10). It was questionable as to whether these artifacts were truly representative of the materials in this area of the feature, since so much more area was actually excavated (Figures 14 and 25). These proveniences, therefore, did not merit further analysis.

The evidence as a whole from the various areas of the feature was difficult to assess due to the confusing proveniences and lack of adequate excavation controls. The three stratigraphic profiles provided some of the most informative data. There were definite similarities between the profiles in terms of feature configuration, depth, and width, for at least the trenches along transects E16 and E38. The soils of these two trenches were also similar, with the fill consisting of a yellow gravelly fill with lenses of darker soil. The artifact assemblages resembled each other to a certain degree, although the units along E38 contained no ceramics and instead contained slag. Most proveniences from both transects contained prehistoric lithics and nail fragments. Generally speaking, the

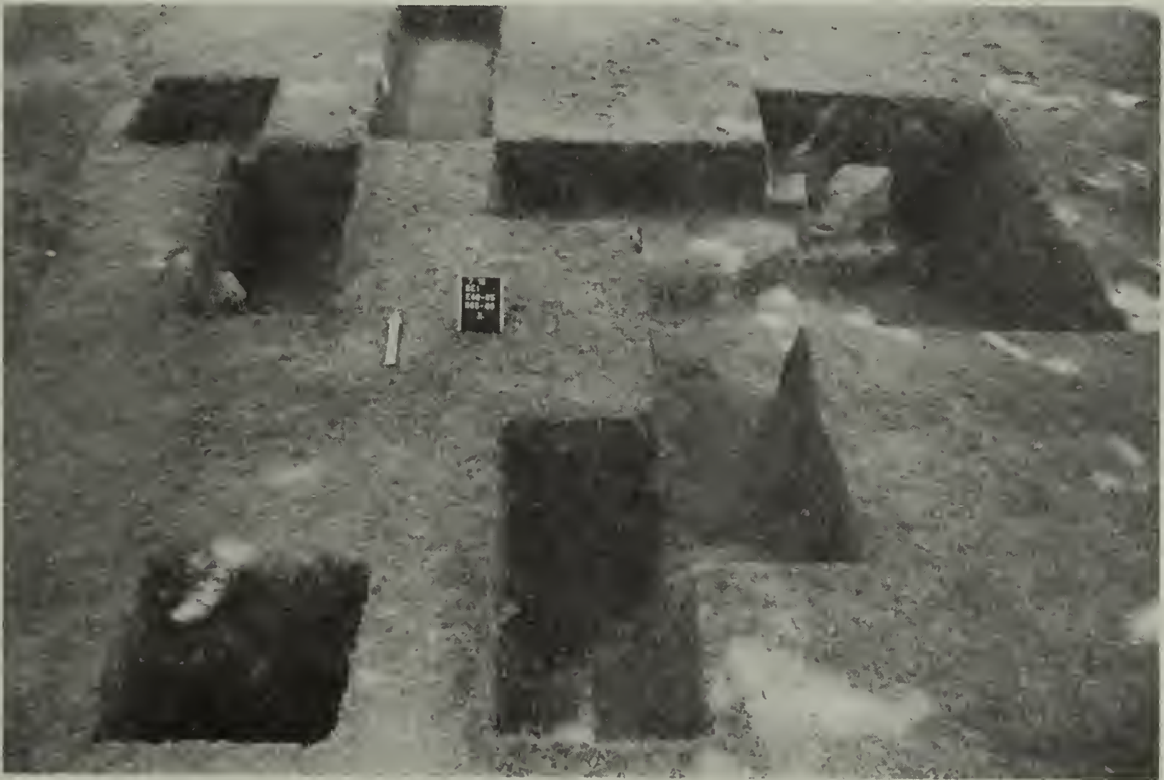


Figure 25. Moran's excavation photograph of Feature 2 area in vicinity of grid point 2E1 E53/S77.5 (Catalog # SAIR 9482).

quantity of artifacts in the feature was relatively small, especially once the materials from the overlying loamy stratum were separated out (Appendix 10). Due to poor excavation controls, it was difficult to make such a separation and to identify precisely what the feature contained. However, there seemed to be few ceramics, glass or other domestic artifacts, and a consistent although minimal presence of metal and lithics in those proveniences which were not contaminated by the overlying loamy deposits.

The feature area along transect E48 was somewhat different. Unfortunately, only a partial profile was available (Figure 23). There was less overlying loam in this area, and the feature was deeper (approximately 7.5 feet), with a nearly vertical boundary along at least the northern side. The fill was also different. Although the northern part of the trench contained a yellow sandy silt with darker mottling similar to the fill in the other two trenches, a large area consisted of large stones and bricks in a darker soil matrix (Figure 24). The artifact assemblage was somewhat similar to those from the other two trenches, although there were a number of early ceramic types present, as well as more bone (Appendix 10).

The field notes also hypothesized that the historic trash deposit located in the 2E2 W0/S44 trench area (see Prior Research Results) might be yet another portion of the possible waterway (Moran 1976c:105-107). However, the notes which were kept during the excavation of these units were too fragmentary to interpret the deposit further, and no field plans or profiles were available. The artifact proveniences available from this area included several lot 3 assemblages, which could have been in the correct stratigraphic position for an extension of Feature 2 (2E2 W0/S37.5, Lot 3, 22"; W0/S48, Lot 3, Fill, Begins 18"; and W2.5/S37.5, Lot 3). However, the assemblages from the lot 3 proveniences contained a large number of artifacts and a wide variety of materials, including 19th century items. This did not correspond well with the fill contents of the other sections of Feature 2, and thus would argue against the W0/S44 area units as an extension of the feature. Given the lack of documentation for this area, the ACMP could make no further evaluation.

It was interesting to compare the evidence from Moran's trenches with the feature which Robbins uncovered in 1950 to the north, beneath the roadbed of former Greystone Road. While far from complete, Robbins' field notes did provide a sketch map of the location of the excavation trenches and the feature, and several sketch soil profiles of the feature. Milner redrafted portions of Robbins' sketch map (Figure 16), and the original plan has also been reproduced as Figure 26. The original soil profile sketches appear as Figure 27. The four portions of the feature uncovered by Robbins measured from 8.75 to 12 feet wide, and 40 to 51 inches (3.3 to 4.25 feet) deep. While the width

Sketch and details of test trenches sunk across Greystone Rd. rear of Lovell's lot and across back yard of Lovell' J. Pierce's property at 6 Marion Rd. seeking possible brook or water course from Cranberry bog.

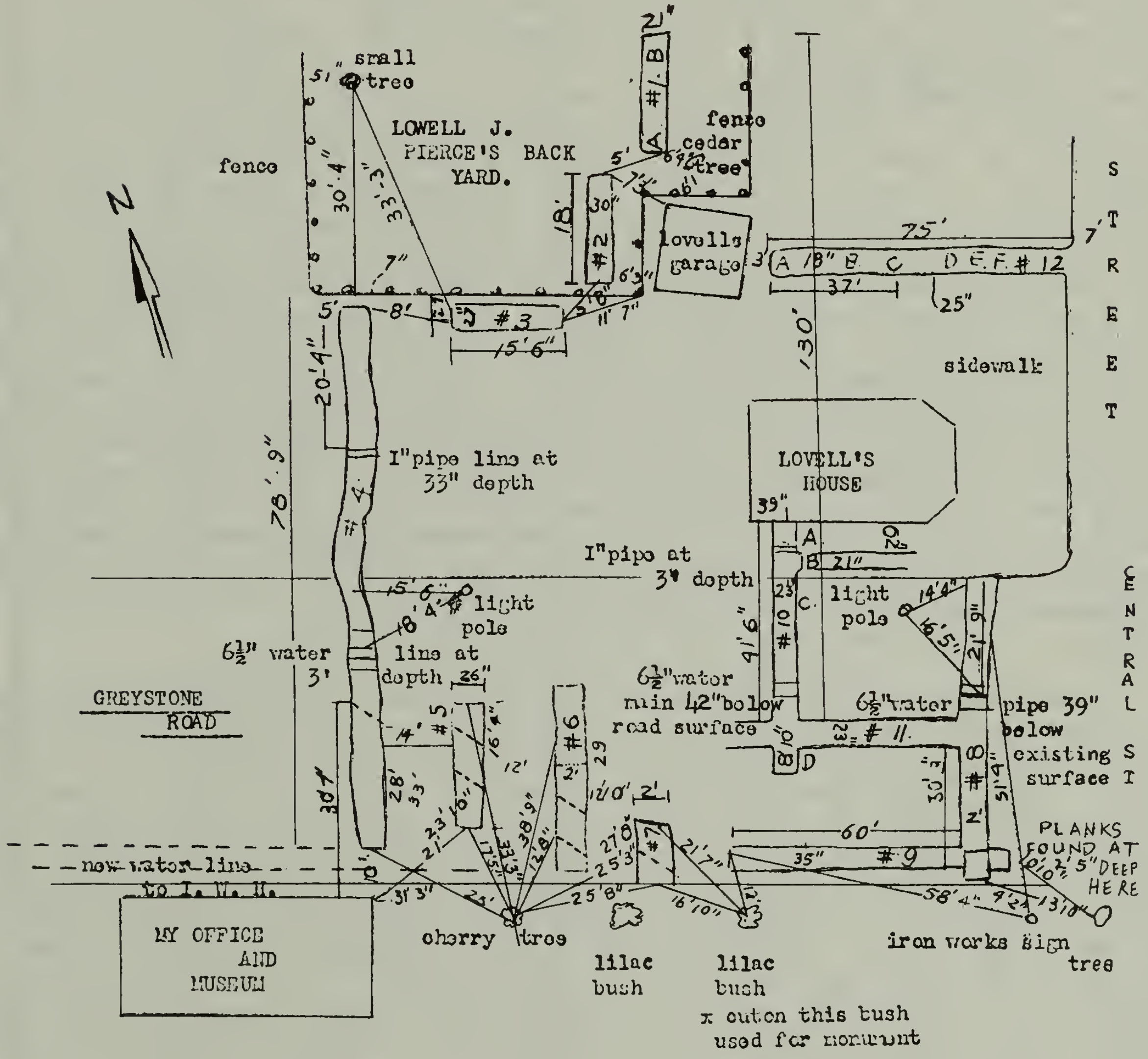
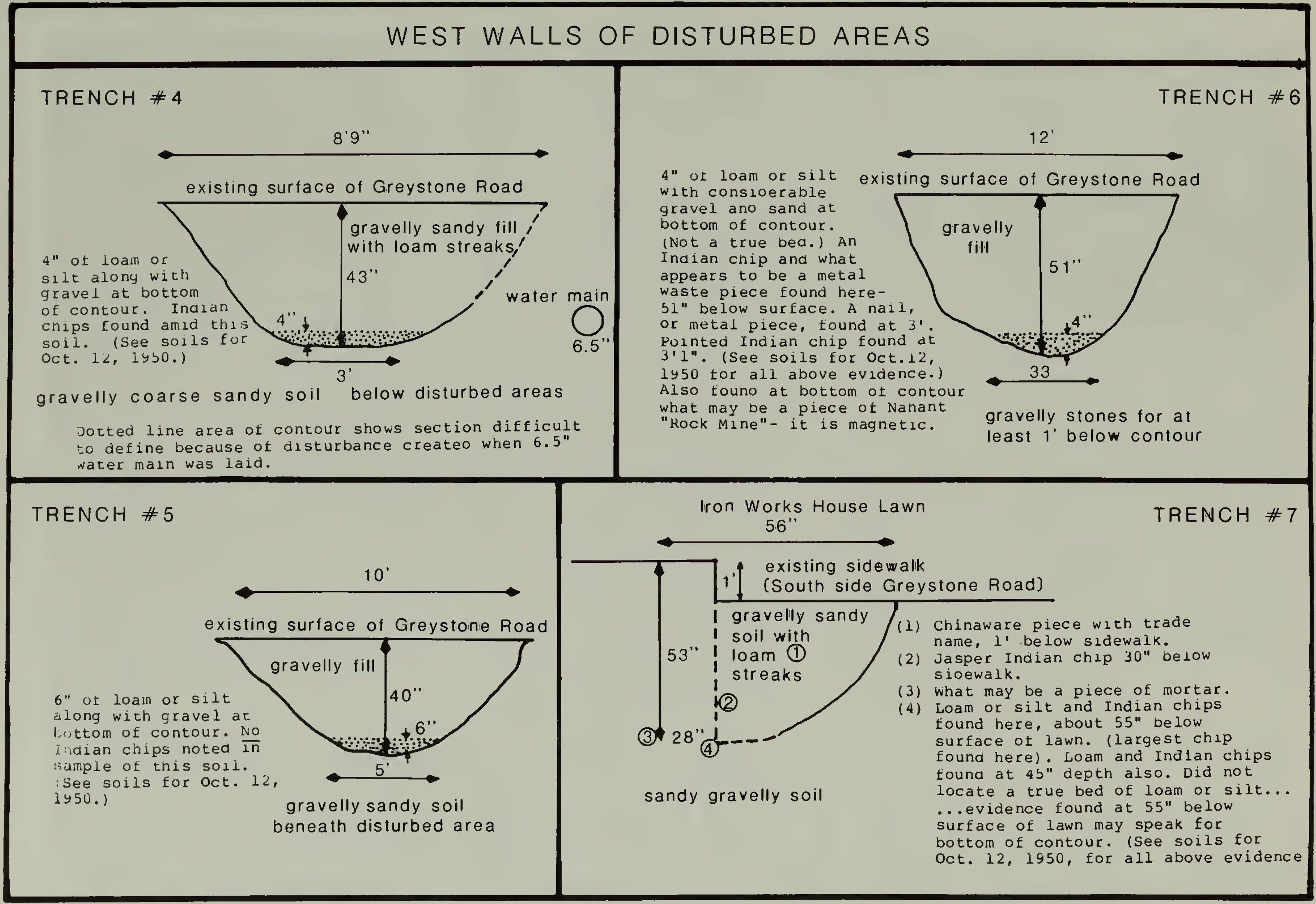


Figure 26. Robbins' original sketch plan of excavation trenches and location of possible waterway (Robbins 1950:38).

compared favorably with the width of the feature along E16 and E38 (11 and over 8 feet, respectively), Robbins' feature was not as deep. In the area excavated by Moran, the feature depth varied between 4.5, 6.5, and 7.5 feet. Robbins' feature was no doubt disturbed, however, by the installation of Greystone Road, and it is possible that the feature was once deeper.

Robbins also noted the contents of the feature he excavated. In trench 4, the feature was filled with a gravelly soil, and had a four inch deposit of loam or silt at the bottom. This silt deposit contained prehistoric lithic flakes, and no additional artifacts were mentioned (Robbins 1950:34). In trench 5, the feature was also filled with gravelly soil and had a five inch deposit of loam or silt with gravel at the bottom. No lithics were recovered from the silt in this trench (Robbins 1950:35). In trench 6, the feature contained a gravelly sandy fill with streaks of loam. A nail or piece of metal was found at three feet, and a lithic flake at 3'1". There was also a four inch deposit of loam or silt with "considerable gravel and sand" at the bottom of the feature (Robbins 1950:35). In trench 7, only part of the feature was excavated as the rest was located beneath the lawn of the Ironmaster's House. The feature was filled with a gravelly sandy soil with streaks of loam. Loam or silt and lithic flakes were located at about 55" beneath the lawn surface, although Robbins was uncertain about the actual bottom configuration due to the partial excavation. Also located in the fill were a "chinaware piece with trade name, 1' below sidewalk," a "Jasper Indian chip 30" below sidewalk," and "what may be a piece of mortar" near the base of the feature (quoted from profile, Figure 27). Robbins interpreted the feature to be the remains of a canal, and the silt deposit in the bottom to be evidence that water once ran through the feature.

The feature discovered by Robbins was thus similar to that found by Moran 26 years later. Physically, the evidence appeared to indicate a trench roughly 10 feet wide and between 4 to 7 feet deep. The fill was probably similar as well, with Robbins' description of a "gravelly sandy soil with loam streaks" (1950:36) resembling Moran's mottled yellow gravel fill with loamy lenses. The artifact content may not have been as similar. Although Robbins documented finding lithic flakes at the base of the feature, other artifact types were reportedly few in number. Moran's excavation recovered a somewhat larger quantity of materials, although if the overlying loamy deposit had been completely separated during excavation, the materials from the feature fill would probably be fewer in number. In fact, those proveniences from Moran's trenches which were more specifically identified as within the feature fill contained few artifacts, which were generally prehistoric lithics and some miscellaneous metal items.


WEST WALLS OF DISTURBED AREAS
TRENCH #4
8'9"
existing surface of Greystone Road
gravelly sandy fill with loam streaks
43"
4"
3'
water main
6.5"
gravelly coarse sandy soil below disturbed areas
TRENCH #6
12'
existing surface of Greystone Road
gravelly fill
51"
4"
33
gravelly stones for at least 1' below contour
TRENCH #5
10'
existing surface of Greystone Road
gravelly fill
40"
6"
5'
gravelly sandy soil beneath disturbed area
TRENCH #7
Iron Works House Lawn
56"
existing sidewalk (South side Greystone Road)
1'
gravelly sandy soil with loam ① streaks
53"
②
③
28"
④
sandy gravelly soil

4" of loam or silt along with gravel at bottom of contour. Indian chips found amid this soil. (See soils for Oct. 12, 1950.)

Dotted line area of contour shows section difficult to define because of disturbance created when 6.5" water main was laid.

4" of loam or silt with considerable gravel and sand at bottom of contour. (Not a true bed.) An Indian chip and what appears to be a metal waste piece found here- 51" below surface. A nail, or metal piece, found at 3'. Pointed Indian chip found at 3'1". (See soils for Oct.12, 1950 for all above evidence.) Also found at bottom of contour what may be a piece of Nanant "Rock Mine"- it is magnetic.

6" of loam or silt along with gravel at bottom of contour. No Indian chips noted in sample of this soil. (See soils for Oct. 12, 1950.)

(1) Chinaware piece with trade name, 1' below sidewalk.
(2) Jasper Indian chip 30" below sidewalk.
(3) What may be a piece of mortar.
(4) Loam or silt and Indian chips found here, about 55" below surface of lawn. (largest chip found here). Loam and Indian chips found at 45" depth also. Did not locate a true bed of loam or silt... ...evidence found at 55" below surface of lawn may speak for bottom of contour. (See soils for Oct. 12, 1950, for all above evidence

Figure 27. Robbins' soil profiles for feature in Greystone Road trenches (from Robbins 1950:34-37).

The exception to these similarities was the evidence of the feature uncovered by Moran in the E48 trench. Moran suggested that the feature turned to the east in this area (1976a:18), which might have explained the difference in feature configuration and content. The fill could also be different simply because a different source of fill was used for that area of the feature. However, the presence of large stones, bricks, and mortar suggested that the fill may have related to a structure. Such fill often results from the demolition of a building, and is often deposited in situ in the former cellar of the structure. In fact, the feature extended to the east and the north in this area in a somewhat amorphous and broader configuration (Figure 14). No evidence of a stone lining or other cellar features were found in this area. However, the vertical nature of the feature wall, as shown in the profile, and the fact that other such features have been excavated in New England (e.g., in Concord, Massachusetts; Alison Dwyer, personal communication 1988), suggests that other interpretations are possible. Such a feature may have even intruded into the trench area, thus altering the configuration of the original feature evidence.

The difference in fills within this trench could be explained by such a situation (Figure 24). However, the evidence as it was excavated was too fragmentary to make any conclusions. It must simply be noted that the feature in the E48 trench and the excavation units to the east revealed a much different configuration than the evidence in the trenches to the north and west excavated by both Moran and Robbins. Additional excavation would be required to further define the nature of this disturbance.

The ACMP could not easily interpret the function of the feature discovered by Robbins and its possible extension excavated by Moran. The artifact evidence from the feature fill could only date the filling, and not the use, of the feature. Even dating the fill was problematic, as excavation controls were not tight enough to separate out the overlying loamy stratum from the feature fill. In those proveniences specified as relatively deeper within the feature, prehistoric flakes, slag, and machine cut nails were present. If the machine cut nails were indeed within the fill, the deposit would date to the turn of the 19th century or later. Such a late date would argue against the waterway interpretation, as a waterway would most likely have been filled following the cessation of industrial operations at the site, as it ran through the yard around the Ironmaster's House. In addition, the feature would have to have been filled prior to the installation of Greystone Road and Central Street, assuming that the waterway continued east to the industrial area, and thus across the top of the bluff where Central Street was later located. According to Park personnel, Greystone Road was not created until ca. 1940 (Frank Studinsky, personal communication 1988). However, Central Street was present by at least 1724, as documented by Cummings' property research (Albright, Carroll, and Cummings 1977:417). Thus the waterway would have been filled by at least this date. Further excavation would certainly be necessary to clarify the dating of the fill, as well as of the feature itself.

Robbins believed the feature to be a canal or waterway leading from the Cranberry Bog (northwest of the site) southeast to the industrial operations. Moran believed that he had uncovered a continuation of Robbins' feature, and that the evidence suggested a waterway used for Joseph Jenks' operations (see Prior Research Results). Interestingly, the soil profiles of Robbins' and Moran's features resembled the profiles which Robbins provided for other waterways he located north of the industrial operations. Although in some instances these latter may have been stone-lined on the bottom, they were otherwise similar in width, depth, and general slope of the feature walls (Robbins 1949:20).

The combined evidence did suggest that Moran may have located a portion of a waterway or canal used for the industrial operations. However, such a feature would certainly have been filled following the cessation of industrial operations. More careful excavation of this feature would be required to both define its configuration and the date of its fill. Moran may also have discovered an intrusive feature in the area along transect E48 and to the east, as suggested by the difference in feature configuration and fill. The composition of the fill in this area resembled deposits which result from the demolition of a structure. However, further excavation would be necessary to determine whether this actually represented a separate feature. It should again be noted that future excavation must employ tighter horizontal and vertical controls to improve the possibilities for interpretation.

The Lean-to Foundation: Moran discovered the dry-laid stone footing for the former lean-to addition to the Ironmaster's House. Although Milner noted the discovery of this feature, it was never described. Sources of information about the footing included several excavation photographs (Figures 28 and 29), and very brief notes as well as two sketch drawings of the excavation trench in the field notes (Moran 1976c:69, 87). No measured drawings were done for the total feature area, and its dimensions could only be approximated. One of the field note sketch plans showed the feature to be a little over two feet in thickness. As shown in the sketches and the photographs, the footing consisted of two parallel rows of dry-laid field stones, with an interior fill of soil and smaller rubble. The stones were encountered at ca. 7-10 inches below the ground surface (Moran 1976c:69). Photographs show at least two courses of stones, but the bottom

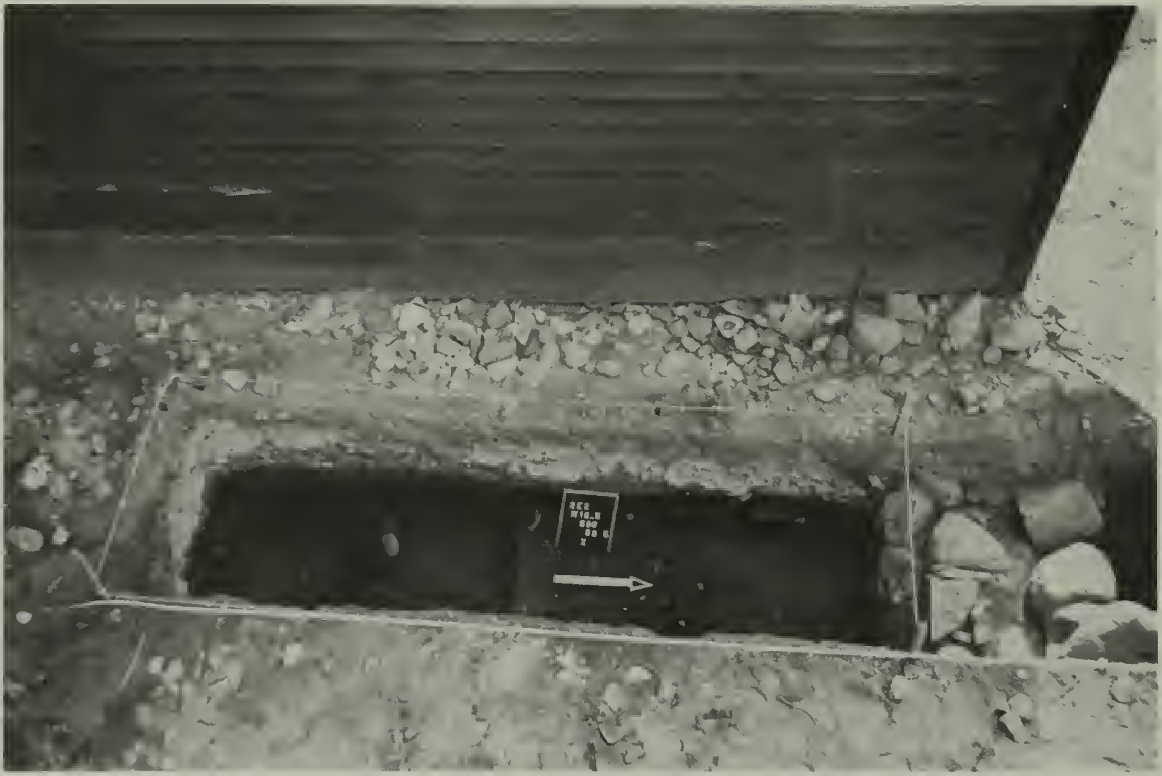


Figure 28. Moran's excavation photograph of the lean-to foundation, trench 2E2 W16.5/S87-95, looking west (Catalog # SAIR 9482). Note possible prehistoric pit feature at extreme left.

elevation of the feature was not recorded. A builder's trench was located along the north side of the feature, and artifacts were reportedly bagged separately (Moran 1976c:69). However, the collection contained no proveniences which referred to a builder's trench, and the contents and thus possible dating of the feature could not be interpreted.

In his 1977 report, NPS Historical Architect Orville Carroll traced the history of the lean-to (Albright et al. 1977:127-137). The house was originally constructed (ca. 1676-1683) with a 1-1/2 story lean-to which ran the full length of the house (Albright et al. 1977:129, 133). In the late 18th or early 19th century, the lean-to was replaced with a two story, full length lean-to (Albright et al. 1977:133). It wasn't until Nutting's restoration work in 1915-1916 that the lean-to was reduced to 1-1/2 stories and half its length, the configuration which Nutting believed to be original and which still exists today. Carroll's research determined, to the contrary, that the original lean-to was full length. Thus the footing which Moran uncovered was the remains of the original lean-to configuration. Although the excavation map showed the footing as somewhat north of the

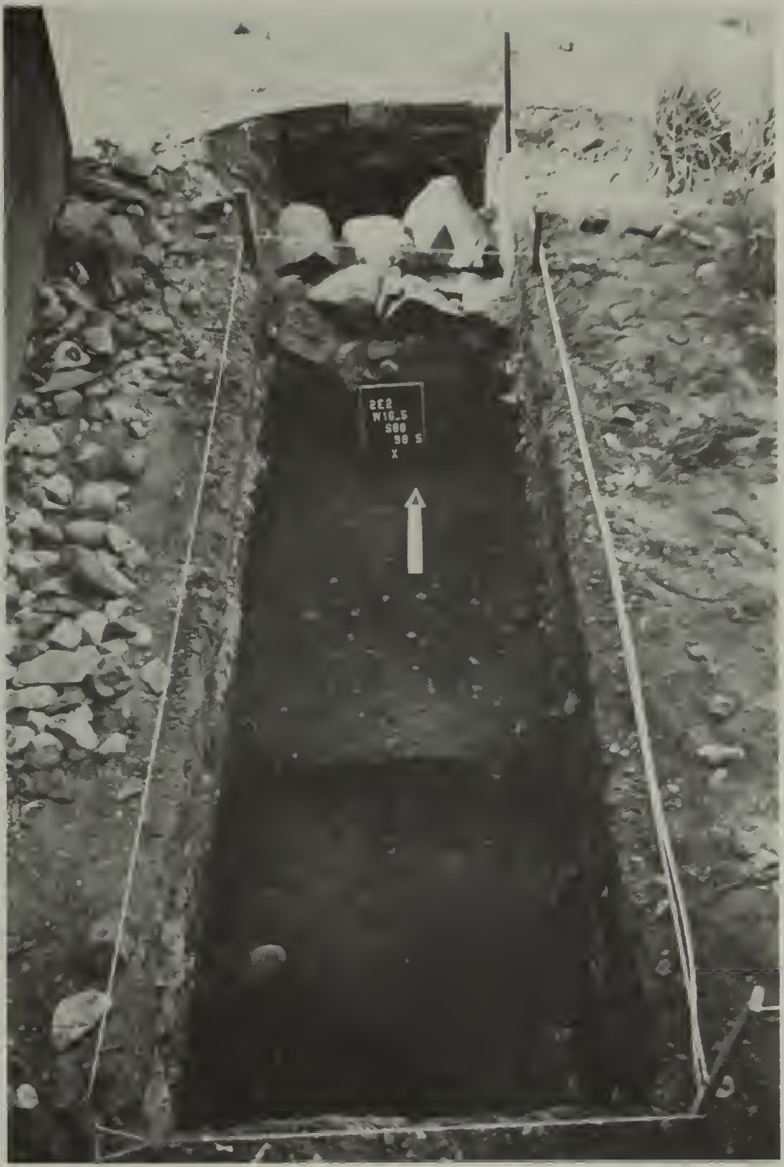


Figure 29. Moran's excavation photograph of the lean-to foundation, trench 2E2 W16.5/S87-95, looking north (Catalog # SAIR 9482).

current lean-to, the excavation photographs indicated to the contrary that the footing extended out directly east of the corner of the current lean-to. The excavation map was thus incorrect in terms of exact excavation unit location (see Map Construction). In spite of this confusion, it was clear from the photographs of the stone footing that the depth of the current lean-to is the same as the depth of the former lean-to. Moran excavated only a small portion of the footing, leaving undisturbed sections for future excavation should the feature be of additional interpretive interest.

Evidence of Structures: The 1976 excavation discovered only one building foundation (Feature 1), which was somewhat surprising given the fairly extensive nature of the excavation and the multiple buildings which were known to have existed on the Iron Works property through time (Appendix 7 and Table 5). Robbins had previously located the remains of two additional structures, one beneath the bed of former Greystone Road, and one to the west of the museum beneath the current path of Central Street (see Prior Research Results). Not much is known about either of these foundations, except that the latter measured approximately four feet square. Neither has been associated with any of the structures noted by Cummings (Appendix 7). Edward Guy, in a discussion with Moran in 1976, mentioned the presence of a former barn foundation beneath Greystone Road, north of the lilac bushes planted on the site. This foundation was reportedly oriented in an east-west direction, and was approximately the size of the eastern portion of the museum building. Guy stated that these stones had been removed, although he did not specify when (Appendix 8). It is possible that this was the foundation discovered by Robbins, and that it was the remains of one of the barns noted by Cummings. The four foot square foundation to the west of the house and museum may also have been the remains of a structure noted by Cummings, though the lack of specific locational or artifactual information did not allow further interpretation.

It should be noted that late 19th and early 20th century photographs, maps, and illustrations of the site provide additional information as to the location of later structures on the property. A number of these have been reproduced in Albright's and Cummings' sections of the Historic Structure Report for the house (Albright, Carroll, and Cummings 1977:82-117, 419-429). The photographs indicate that there were multiple structures in front of the Ironmaster's House, and that the archeological record in this area would thus be highly disturbed. These buildings were largely associated with the Mansfield House, and were removed after the NPS acquired the property (Figures 10 and 30).

Also present in many of the illustrations and photographs is an outbuilding immediately to the rear of, and about 10-20 feet from, the former Ironmaster's House lean-to (Figure 31). This fairly large structure was oriented in a north-south direction behind the east end of the house, and was present from at least 1884 until Nutting's restoration in 1915-1916. It is possible that this was the building which Guy reported served as the first workshop while the new shop was constructed, presumably during Nutting's tenure. Guy noted that this workshop appeared in early 20th century photographs. He also noted that there were no foundations for this structure (Appendix 8). This might explain why the archeologists found no direct evidence of a structure in this area, although it is also true that few excavation units

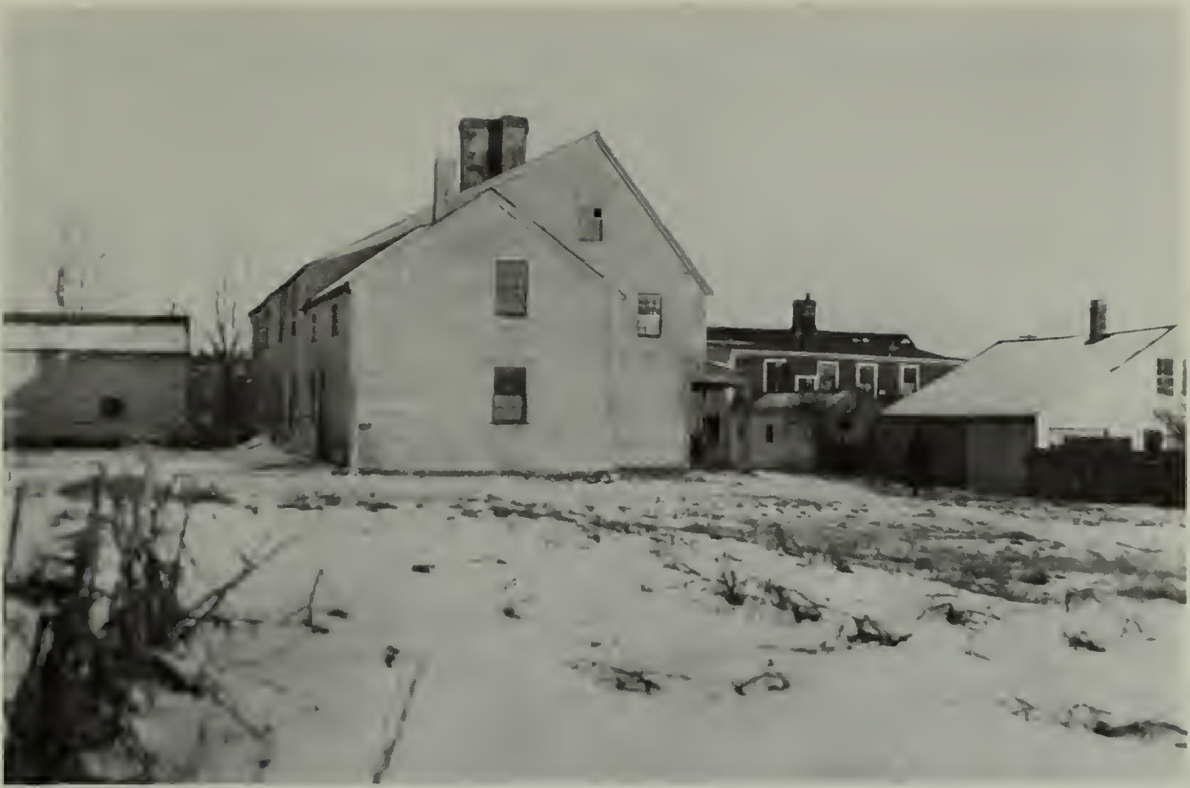


Figure 30. Historic photograph of the Iron Works House and Mansfield House outbuildings to the right, looking east, taken by William S. Appleton, 1915. Courtesy of the Society for the Preservation of New England Antiquities.

were located in the immediate area. It may be that the historic trash deposit discovered in the vicinity of 2E2 W0/S44 was related to this structure.

In addition to these structures and those noted by Cummings (Appendix 7), Guy mentioned the presence of a second barn located northwest of the museum, and chicken coops to the west of the museum. These and the other structures documented in the late 19th and early 20th century maps and photographs emphasize the fact that the grounds around the Ironmaster's House were extensively used for multiple activities throughout the many years of site occupation. If further archeological work is done on the site, the known and hypothesized locations of these buildings must be taken into account in designing the excavation strategy.

Historic Feature Summary: The ACMP was able to identify some previously undocumented historic features, as well as to further interpret the features reported by Moran and Milner. Many of the previously undocumented features were created by the

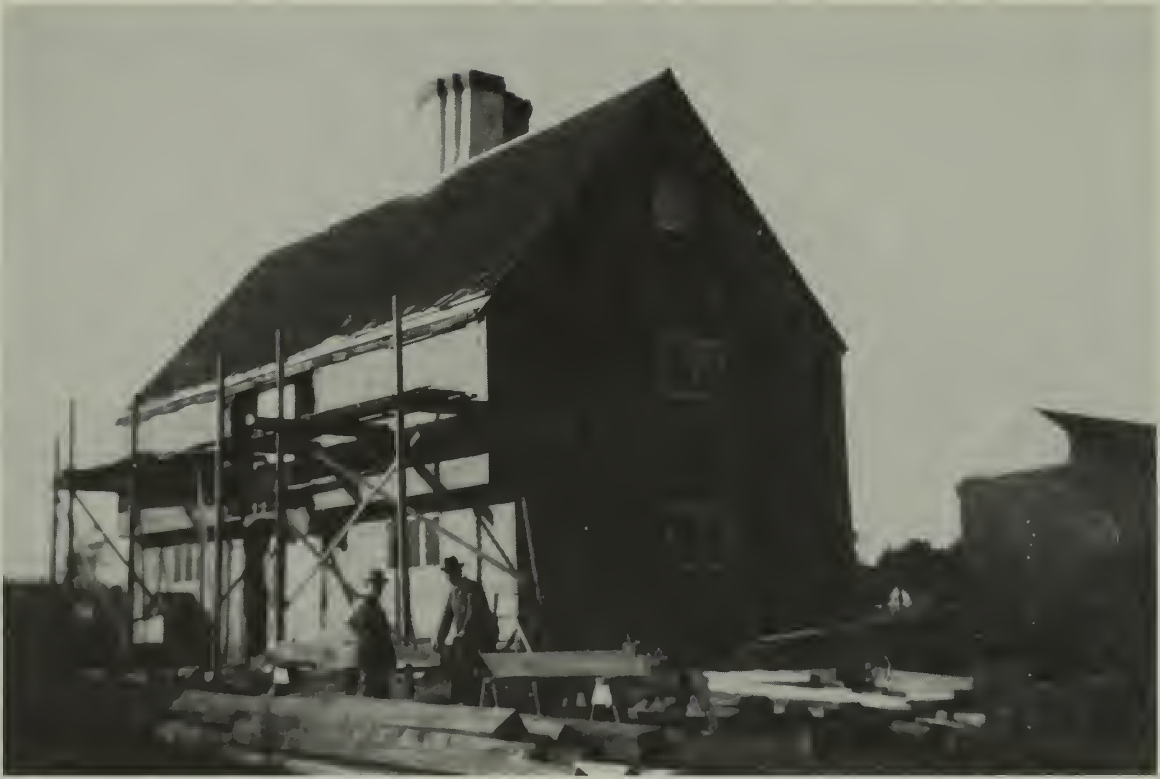


Figure 31. Historic photograph of the Iron Works House during Nutting's 1915 restoration, showing the outbuilding behind the house. Courtesy of the Society for the Preservation of the New England Antiquities.

installation of modern utilities and thus did not affect the interpretation of the site other than to clarify the confusion of artifact proveniences in the Accession #13 collection. Other features included a number of postholes with no identifiable pattern; several amorphous soil deposits; the builder's trench associated with Feature 1, the stone foundation; and a brick-lined "old well" of unidentifiable date, which had been converted into a septic tank.

The two major features located during the 1976 excavations were also examined in greater detail by the ACMP than had previously been done. Feature 1, the stone foundation, appeared to have been filled during the 18th century or at the turn of the 19th century, and was thus probably a functioning structure during the 18th century if not earlier. Although further excavation would be required to more accurately interpret the foundation, it may represent the remains of either the 18th century brick kitchen or smith's shop identified by Cummings' deed research.

The analysis of Feature 2, the possible waterway, was more difficult due to the lack of adequate excavation controls. It was not clear when the feature was used or filled. However, the configuration and contents of the feature compared favorably to Roland Robbins' previous waterway findings. Considered together, Robbins' and Moran's findings may therefore indicate that a waterway ran from the Cranberry Bog, southeast towards the Jenks' area of industrial operations. Further, more controlled, excavations would be necessary to fully understand this feature. It was possible that an additional disturbance intruded into the Feature 2 area near grid point 2E1 E48/S75. This disturbance had a different configuration from the other portions of Feature 2, and was filled with large stones and building rubble. The fill suggested the possibility that a structure was once located in this area, although the excavation evidence was not adequate to firmly establish such a hypothesis.

The ACMP also reviewed the evidence for the former lean-to to the Ironmaster's House, which proved to have the same depth dimension as the current half length lean-to. The early lean-to was an original portion of the Ironmaster's House, and ran across the full length of the house.

The remains of two additional structures were located by Robbins, to the northeast and west of the museum building. Neither of these were identified as to function or date, although they may relate to late 19th or early 20th structures documented by Cummings or by maps and photographs. According to Edward Guy, the foundation northeast of the museum beneath Greystone Road may have been a barn, several of which have been documented for the property (Appendix 7). However, no information was available for evaluating the possible date of this foundation.

Given the number of structures which are known to have existed on the property, it is surprising that so few were located during Moran's excavation. The documentation that is available, through Cummings' research, historic maps, and photographs, should be reviewed in designing any future excavations at the site.

Site Stratigraphy

Stratigraphic Deposits: Although detailed stratigraphic records were not maintained during the 1976 excavation, several broad, cultural stratigraphic deposits could be identified from the field notes. The first was commonly noted as a "coal and ash layer." This deposit was mentioned for a variety of units in Sector 2, one unit in Sector 5, and not at all for units in Sectors 1, 3, or 4. Sector 2 was thus the primary locus of this deposit, which spread across much of the sector. Table 10 lists the various units for which this layer was noted, and identifies the depth and thickness of the layer when possible. This should not be regarded as a complete listing, since the excavation records were inconsistent and incomplete. However, it does suggest that either multiple coal and ash lenses were distributed across Sector 2, or that a large deposit of coal and ash was revealed in multiple excavation units. Looking at the depth of the deposits and thickness of the deposits, it appeared that both phenomena may be reflected. A large, widespread deposit may be represented at ca. 3-12 inches below the current ground surface, ranging from ca. 2-5 inches thick. It also appeared that a few distinct deposits may be represented. In unit 2E2 W0/S42-49.5, for example, the coal ash lens appeared at 23 inches below ground surface, which was much deeper than the other deposits. The notes also specified that in unit 2E2 W2.5/S39.5-44.5, the lens also contained slag. In unit 2E2 W3/S74-76.5, the lens contained a high concentration of nails. These two deposits may reflect a more specific activity area.

Table 10

Locations of "Coal and Ash Layer"

Sector	Excavation Unit	Depth Below Surface	Thickness	Page in Field Notes
2	W0/S42-49.5	23"	2"	105
2	W0/S66.5	in Lot 1	?	123
2	W2.5/S37.5	8"	?	91
2	W2.5/S39.5-44.5*	10"	5"	107
2	W3/S74-76.5**	8	4"	109
2	W4.5/S55.5-58	12"	9"	119
2	W9/S74-76.5	6"	2"	109, 115
2	W33.5-36/S67.5-72.5	3"	2"	51, 53
2	W40/S45-58.5	4"	1-2"	field profile map
5	W12/S5	4-5"	3-6"	92, 102

* Slag noted in this coal and ash deposit.
** High concentration of nails noted in this deposit.

Interpretation of the coal and ash layer was difficult due to the lack of adequate records and excavation controls. However, the presence of this layer in Sector 2 has several possibilities. Edward and Edward L. Guy, the father and son blacksmiths who worked on the property during the 20th century (ca. 1917-1950), ran their smithing operations in two shops located in the Sector 2 area (the museum building and a previous structure further east). It is possible that much of this deposit resulted from their activities, and would thus provide an important datable stratum in the site stratigraphy. It is also possible that some of the coal and ash deposits related to the earlier smithing on the site, as an 18th century smith's shop was located somewhere in the yard of the Ironmaster's House (Appendix 7). The deeper deposit in 2E2 W0/S42-49.5 may reflect such activity. Certainly a smith's shop would leave a very distinct signature in the archeological record, but it could not be demonstrated with certainty that these deposits related to either smithing activity.

The second broad stratigraphic deposit was a layer of loam which overlay much of the site. While a certain amount of loamy humus or topsoil is common on most sites, the layer of loam across much of the Ironmaster's House grounds was thicker than a natural deposit, and most likely reflected the extensive landscaping activities that have been conducted on the property. Although the field records did not consistently document this stratum, the available profiles indicated that it was no less than six inches deep, often a foot to a foot and a half deep, and at times up to two feet deep. The average depth of the loamy stratum for available profiles was a little over a foot, or about 13-14 inches.

The artifacts from this stratum were not excavated separately from other deposits. At the least, Lot 1 probably represented this deposit in most cases, as it was intended to include the first ten inches of soil. The various Lot 1 proveniences contained a wide array of artifact types, including prehistoric materials and the full spectrum of historic period artifacts, from 17th to 20th century in date. Such an artifact assemblage suggested that the loamy stratum overlying much of the site was a heavily disturbed deposit. It may have resulted from the landscaping done during Robbins' tenure at the site, when the First Ironworks Association was preparing the property as a public historic site. It is known from Robbins' field notes that a good deal of landscaping was done on the property, including both the grading of certain areas and the distribution of loam (Brown 1975:17-23). The significance of the overlying loamy stratum for future excavations is that the upper 6-24 inches of soil may reflect a recent disturbed deposit, possibly containing soils imported from other areas of the site. This layer should not, therefore, be used in the interpretation of earlier site activities.

Site Stratigraphic Integrity: Milner's 1978 report included an analysis of site stratigraphy. Certain ceramic types were used to determine whether a chronological pattern existed, and thus if the site retained stratigraphic integrity (see Prior Research Results). The analysis showed that there was a general progression from early materials in the lower strata to later materials in the upper strata. Milner was cautious to interpret these results, as the original excavation controls were not adequate for detailed stratigraphic analysis. However, on a general level the data did suggest that the site retained stratigraphic integrity.

The ACMP concurred with Milner that the excavation controls were inadequate for confident stratigraphic analysis. However, it seemed appropriate to at least qualify the results of Milner's analysis based upon the procedures which were utilized. Even Milner's report recognized the need for more specific analysis (1978:21). Several procedures would have to be changed to provide an accurate analysis. First, the ceramic types Milner used would require further definition to be accurately diagnostic. For example, the general "stoneware" category would require separation between 19th century domestic stoneware and earlier imported European stonewares, as not all "stoneware" from the site was manufactured as early as Milner's analysis implied. Secondly, other artifact classes would have to be analyzed to confidently date the stratigraphic assemblages. In particular, bottle glass and nails would need to be quantified and compared to the results of the ceramic analysis. Without the full range of chronologically diagnostic artifacts, the analysis could easily be misleading.

In addition, the analysis would require using only those proveniences which were not associated with intrusive features. Milner's analysis included proveniences which were part of such features, especially in the Lot 4 and Lot 5 analysis. The only Lot 4 and Lot 5 proveniences in the collection were from within the two major features excavated: the stone foundation and the possible waterway. Thus, the Lot 4 and Lot 5 histograms in Milner's report were not considered germane to the discussion of general site integrity. Separating out the proveniences which could be identified as intrusive, the general site stratigraphy was represented by a maximum of only three levels, or lots, and only these should be used.

Thus the results of Milner's analysis must be regarded in light of these limitations. The ACMP did not undertake a reanalysis, as the data problems were too great to do so with confidence. However, other indications from the excavation suggest that there is remaining stratigraphic integrity at the site. For example, Moran uncovered intact features, both historic and prehistoric, as well as buried ground surfaces. These were overlain by a layer of loamy disturbed soil approximately 1-2 feet in depth. Thus it appears that in spite of the disturbances caused by the installation of utilities, landscaping activities, and both Robbins' and Moran's excavations, there may be portions of the site which are relatively undisturbed beneath the upper loamy soil stratum.

Metal Objects in the Collection

The area on top of the bluff around the Ironmaster's House was associated with the Iron Works industrial operations in terms of at least proximity and ownership. However, the 1976 excavation produced no objects which could be directly associated with the industrial activities. The collection did contain a fair number of metal artifacts, many of which could not be identified due to their fragmentary nature or state of corrosion (662 indeterminate metal objects). It also contained a rather large assemblage of miscellaneous hardware (226 items), some of which could be more specifically identified. Other metal objects included many nails (2389), only a few of which (34) could be identified as hand wrought; a few hand tools; several kitchenware objects, including several iron pot or vessel fragments, none of which were identifiable as Iron Works period vessels; some door and window hardware; a variety of personal objects and cutlery fragments; and other assorted categories. The total count for all metal objects from the excavations was 3409 items (Appendix 6).

None of the metal objects could be identified as products of the Iron Works, or of Wallace Nutting's 20th century enterprise for which Edward Guy produced colonial period reproduction hardware. These latter objects were pictured in the sale catalogs for Nutting's business, and did not correspond to the excavated items. The hardware categories did include an early door key and padlock, probably 18th century in date (Orville Carroll, personal communication 1988), and a thumb latch for an early door handle. However, these objects probably did not relate to the industrial or smithing activities on the site.

The collection also contained a few pieces of bog iron ore and a relatively small assemblage of slag (1996.2 grams). These materials were clustered in primarily two areas, both in Sector 1, just to the west of the stone foundation (Feature 1), and in the fill of the possible waterway (Feature 2). Unfortunately, the collection of slag and bog iron was not the full quantity actually excavated, as much of it was discarded during Milner's inventory. In addition, it is not known if the excavators retained all slag encountered. These problems prevented any quantitative or distributional analysis of the slag and ore. Nonetheless, it is interesting to note the presence of such material in proximity to or association with the two major features excavated. It is especially significant if Feature 1, the foundation, was associated with the early 18th century kitchen and adjoining smith's shop, as proposed earlier in this section of the report. The presence of slag in the vicinity of the feature might indicate activity areas which would be worthy of additional excavation should this feature be of interpretive interest.

It was not surprising that no metal objects associated with the Iron Works were located near the house, as the two areas were physically separated by the bluff. However, it may also be significant that no such materials were found, as it may indicate that the Iron Works activities were indeed confined to the area east of the bluff. Such information adds to the picture of daily life during the Iron Works period: how the different areas of the site were used, and the separation between the upland domestic areas and the floodplain industrial areas. Certainly most of the industrial activities, from gathering the ore to shipping out the products, were conducted along the river. Were there any sharp divisions in the use of space which were recognized by the management and the workers? How was the land on top of the bluff utilized during the Iron Works period? How might these issues relate to the separation between management and workers, whose housing has not been located to date? Such questions would merit additional study in any future excavation.

ACMP Evaluation: Prehistoric Component

Although the focus of interpretation at the Park is the Iron Works period, there was also a long and significant prehistoric occupation at the site. In fact, the Iron Works property seems to have been part of a larger area which was used extensively during prehistoric times. This is an important aspect of the history of the property and of the area in general, and provides a broader context within which to view the historical continuity of the site. It was not within the scope of the ACMP to do a thorough analysis of the site's prehistoric component, but the major aspects of this important resource will be described below.

Site Location and Other Recorded Sites

The Iron Works property is situated in a prime physiographic location on the west bank of the Saugus River. There are three major physiographic components of the site. The first is the floodplain area, where the Iron Works industrial features were located and where the majority of Robbins' 1948-1953 excavations took place. The second component is the high flat area adjacent to the west and above the bluff, where the Ironmaster's House is located and where Moran's 1976 excavations occurred. This area is part of a somewhat larger flat plain which is bordered on the east by the river and on all other sides by numerous hills (Figure 1). The third component is along the eastern side of the river, where a gently sloping terrace rises from the river floodplain and is bordered on the east by the Vinegar Hills. In addition, the property is located at the head of a riverine estuary, and just below a rise in river elevation where a series of rapids occurs. This combination of physiographic features forms a setting which was no doubt rich for prehistoric subsistence. Indeed, prehistoric remains have been recorded for each of the three physiographic areas.

Very little systematic archeological work has been conducted in the vicinity of the Park, although several sites have been registered with the Massachusetts Historical Commission (MHC). In 1982, the Iron Works property itself was recorded as state site number 19-ES-248. The Park has three collections of prehistoric materials from this overall site area, which are a part of the following accessions: Accession #13, from Moran's blufftop excavation; Accession #1, from Robbins' floodplain excavations; and Accession #14, the LaFrance collection, which also contains materials from Robbins' floodplain excavations.

The terrace east of the river was recorded in 1971 as the "Saugus Estuary" site, 19-ES-257. This site was apparently rich in cultural materials, and according to an anonymous local collector it yielded large numbers of projectile points. The location of this collection is not known. The MHC site form also noted that a possible fish weir had been reported in this area. No systematic archeological work was conducted on the site, and it has reportedly been destroyed by topsoil removal and housing development. The site form commented that the area was occupied during Woodland times and probably earlier.

A third site was recorded for an area east of the river adjacent to Park property, and southeast of 19-ES-257. The "Small Site," 19-ES-518, was the source of a private collection of lithic artifacts which were donated to the Park and subsequently cataloged (Accession #42). Both Middle and Late Archaic components were recorded for the site. Judging from their physical proximity and the physiographic nature of the area, these three sites were no doubt related and might even have been different loci of the same site. The materials from 19-ES-248 will be discussed in the following sections.

Diagnostic Artifacts and Site Chronology

A large assemblage of prehistoric materials was recovered during Moran's 1976 excavation in the vicinity of the Ironmaster's House. Milner's final report on the excavation provided a limited analysis of these materials (see Prior Research Results). During the ACMP, certain changes were made in the identification of these artifacts, which influenced their interpretation. Also, our understanding of prehistoric occupations in the Northeast has been somewhat refined since Milner's 1978 report. An additional evaluation of the materials thus seemed appropriate.

A general note must be made that the collection did not merit extensive quantitative analysis. This was due to the lack of adequate horizontal and stratigraphic controls maintained during excavation, as well as the fact that the collection may be a biased sample since all prehistoric materials were not necessarily retained (see Collection Summary). However, an evaluation of the general site chronology and of the specific prehistoric features was possible, and provided important interpretive information.

The ACMP used the MHC's 1984 artifact classification system for the identification of the Accession #13 lithics (MHC 1984). This system was chosen as a standardized approach to lithic identification for all ACMP's in the hopes that it would provide inter-site and inter-Park analysis. The system was developed as part of the MHC's statewide prehistoric survey, and synthesized a wide range of existing artifact typologies for its classification system (MHC 1984:3, 14-18). The MHC typology was not available at the time of Milner's analysis, and thus the lithic tool types identified by Milner differ from those used by the ACMP. The differences in projectile point identification are summarized in

Table 11. To a large extent, these differences are in name only, although at times they also reflect a difference in chronological interpretation.

Although the sample size of diagnostic projectile points was small for the Accession #13 collection (seven diagnostic points and four possibly diagnostic points), it did suggest that the site was utilized by prehistoric people from generally the Middle Archaic through the Late Woodland periods, ca. 8000 - 400 BP (years Before Present). This interpretation contradicts Milner's, which hypothesized that there was a gap in the chronological sequence, and that the site may not have been utilized during the Early and Middle Woodland periods, from ca. 1000 BC - AD 900 (2950 - 1050 BP) (Milner 1978:42).

The chronological interpretation is further bolstered by the evidence from the LaFrance collection (Accession #14), which was recovered from the floodplain area during Robbins' excavations. These materials, consisting of 1408 prehistoric lithics and ceramics, were cataloged in 1985 by contract archeologist Tonya Largy, using a classification system comparable to the MHC typology. Largy also cataloged the Small collection (Accession #42), which was recovered from a houselot adjacent to Park property on the east side of the river. There were problems in using the LaFrance and Small materials for analysis, as they do not represent systematic collections and may not be representative of the full range of artifacts actually present at the site. Nonetheless, they did indicate the presence of at least certain artifact types.

Figure 32 shows the presence of diagnostic projectile point types in the LaFrance and Small collections, which the ACMP did not catalog. Many of the point types were represented by multiple specimens in the collections. Figure 32 also provides a visual depiction of the time ranges represented by these types, and a comparison with the Accession #13 point types from the blufftop area. The figure demonstrates the degree of overlap between projectile point types from these two collections and the Accession #13 collection. While a number of types were unique to the LaFrance and Small collections, they indicated a similar, generally continuous chronological range, from ca. 8000 - 400 BP. In addition, they further substantiated that the area was utilized during the Early and Middle Woodland periods, contrary to Milner's hypothesis. It should be noted that the site may not have been utilized in a strictly continuous sense. However, it was not possible to identify more specific periods of use or gaps in the sequence given the poor stratigraphic data and the lack of absolute dates from the site.

Prehistoric ceramics provided additional, although limited, diagnostic information. Only five ceramic body sherds were inventoried in the Accession #13 collection: four grit-tempered

Table 11

Projectile Point Classification, Accession #13

Catalog #s	Milner Classification	ACMP/MHC Classification	MHC Chronological Framework*
SAIR 3424-3426	Steubenville Lanceolate (3)	Woodland Lanceolate;	Middle Woodland, 1300-400BP
		Bifacial Implement Blade, Basal Fragment;	----------
		Bifacial Implement Blade, Basal Fragment	----------
SAIR 3427-3428	Steubenville Stemmed (2)	Woodland Stemmed (2)	Middle Woodland, 1800-1300BP
SAIR 3429	Large Untyped Expanding Stem	Unidentified	----------
SAIR 3430-3432	Levanna (3)	Large Triangle	Late Woodland, 1300-400BP
		Bifacial Implement Blade, Reworked Point;	----------
		Bifacial Implement Blade	----------
SAIR 3433	Squibnocket Triangular	Small Triangle	Late Archaic, 5000-3000BP
SAIR 3434-3435	Untyped Small Corner-Notched (2)	Unidentified, Possible Brewerton Corner-Notched or Woodland Corner-Notched;	Possible Late Archaic, 5500-4500BP; or Possible Middle Woodland, 1600-1100BP
		Unidentified	-----------
SAIR 3436-3437	Susquehanna Broadspear (2)	Unidentified, Possible Susquehanna Broad-Like;	Possible Late Archaic, 4000-3500BP
		Unidentified, Possible Wayland Notched-Like	Possible Late Archaic, 3600-3000BP
SAIR 3438	Atlantic	Neville-Like	Middle Archaic, 8000-7000BP
SAIR 6293	-------------	Meadowood-Like	Early Woodland, 3000-2500BP

* Chronological Period; years Before Present (before 1950); from MHC 1984.

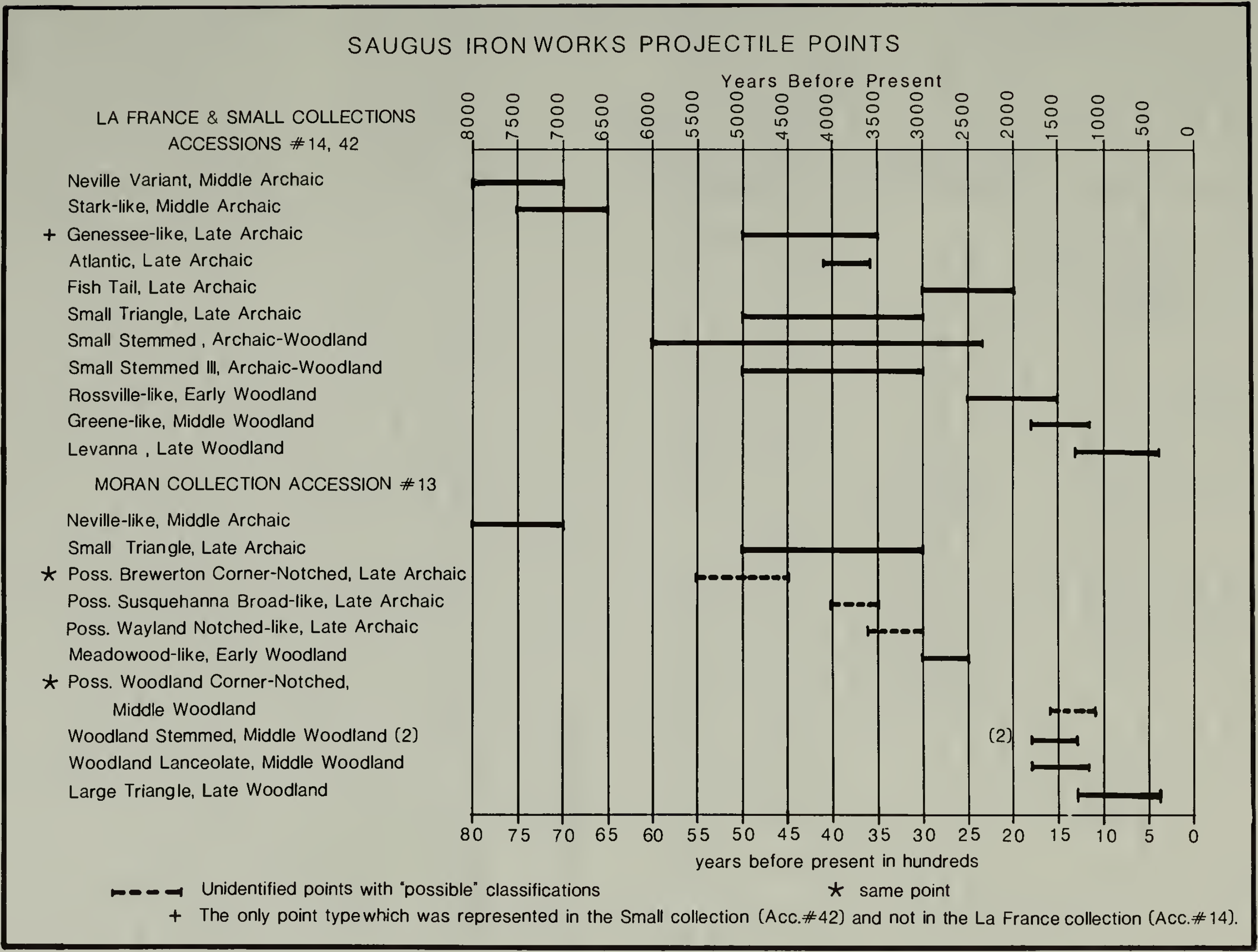


Figure 32. Projectile point types from the LaFrance, Small and Moran collections.

sherds, one with a possible corded decoration, and one with a punctate decoration; and one grit and mica-tempered sherd with a punctate decoration (Catalog # SAIR 3476, 4843, 4844, 4846, 5518). The chronology of ceramic types for Massachusetts has not been firmly established, and the wares represented may reflect Early, Middle or Late Woodland manufacture. A larger sample size and more extensive attribute analysis would be required to further refine the ceramic chronological sequence in relationship to other Massachusetts studies (e.g., McManamon 1984; Luedtke 1986). The sample size could be increased using the LaFrance collection, which contained a wider variety of ceramic types. Again, the ACMP did not quantify this information, but some of the ceramic types present in the Accession #14 collection included grit-tempered sherds with stamped, incised, dentate, rocker-like stamped, and cordmarked decorations, as well as some shell-tempered sherds. Such an assemblage might more accurately identify Middle and Late Woodland manufacture.

The evidence from these three collections thus argues that the area which later became the site of the Saugus Iron Works was utilized by prehistoric people from ca. 8000 - 400 BP. This provides a general chronological framework for the site's prehistory. Additional information was limited by the data problems with each collection. However, Moran's 1976 excavation revealed several prehistoric features which provided additional interpretive information.

Prehistoric Features

Features Identified by Milner: Milner's report identified five prehistoric features from Moran's field notes: three pits, one soil lens, and a lithic concentration (see Prior Research Results). However, these features were not fully described, and their contents were not noted. Nor were they interpreted within a chronological framework. These five features are listed on Table 12, and will be discussed below.

The three pit features were the primary prehistoric features excavated. Milner identified the location of one of the pit features as unit 2E1 E83.5/S113. However, Moran's field notes recorded that this unit was culturally sterile (Moran 1976c:100), and indeed the collection contained no artifacts from this unit. It is possible that Milner misrecorded the unit, as there was an additional pit feature mentioned in the field notes which was not identified in Milner's report. This feature appeared in trench 2E1 E71.5/S105, and the collection contained prehistoric materials for this provenience. The field notes included a sketch of the trench, which indicated that the pit feature was located on the western edge of the trench, at approximately E69/S101-102 (Moran 1976c:116). The pit was circular in shape,

Table 12

Prehistoric Features

Feature Type	Grid Location	Top Elevation Below Surface	Approx. Size (Horizontal/ Vertical)	Diagnostic Materials	Comments
Possible Pit	2E1 E83.5/S113	---	---	---	No such feature; misidentified by Milner
Possible Pit	2E1 E71.5/S105	25"	ca.1' diam?/?	---	Too little data to interpret
Possible Pit	2E2 W16.5/S87-98.5	14"	?/10"	Woodland Stemmed Point	Possibly an extension of Lot 3
Possible Pit	2E2 W36-46/ S67.5-72.5	26-28"	4'/20"	Large Triangle Point, 4 ceramic sherds	Excavated in search of reported burial
Lithic Concentration	2E1 E8/S120	?	?		
Soil Lens	2E2 W0/S66.5	22"	?		

possibly ca. one foot in diameter, and was first encountered at 25" below the ground surface (Figure 14).

The notes did not describe the soil type, the specific artifacts present, or the depth of the feature. Unfortunately, it was difficult to further interpret this possible prehistoric pit, as virtually no notes were available and no artifacts were labelled as specifically from the feature. Presumably the prehistoric materials from the feature, which the field notes mentioned were present but did not describe, were combined with other artifacts from the unit. There were only two proveniences from this unit represented in the artifact collection, Levels 1 and 2. Both contained prehistoric materials: one Neville-like felsite projectile point, and six flakes. The point dated to the Middle Archaic period, ca. 8000 - 7000 BP. However, the lack of clear association between the artifact proveniences and the feature prevented a firm dating of the pit. Milner's map of the prehistoric features and artifact distributions did not include this pit (Milner 1978:Figure 5-6).

The second pit-like feature, located in trench 2E2 W16.5/S87-95, was one of the major prehistoric features excavated. Apparently the grid coordinates for the trench were measured incorrectly, as the field notes recorded a change in designation to W16/S87.8-98.5 (Moran 1976c:87). However, the artifact proveniences reflect the original, and thus incorrect, grid location. Only a portion of the pit was exposed in the southwestern corner of the trench, and the unit was not expanded to excavate the entire feature (Figures 14 and 28). That portion which was excavated was encountered at ca. 14 inches below ground surface as an extension of the dark humus-like Lot 3 soil, and extended down another 10 inches (Moran 1976c:78). Although no measured plans or profiles of the feature exist, the field note sketch plan suggested that the excavated portion of the pit measured well over a foot in diameter (Moran 1976c:78).

The field notes also recorded that the pit feature contained "plentiful" lithics, and that all artifacts in Lot 3 of the unit were prehistoric lithics as well (Moran 1976c:78). Indeed, the artifact collection from this trench contained by far the greatest quantity of lithics of any other area excavated, totalling 848 artifacts. An additional 236 lithics from this trench were missing from the collection, including a bag of 220 flakes from a "Lot 3 Feature" provenience. This would bring the lithic total to 1,084.

Of the 848 lithics present in the collection, 309 were identified specifically as from the feature ("Feature Lot 3"), and another 482 were from Lot 3. Lots 1 and 2 also contained lithics, though in lesser quantities (44 and 13, respectively). Most of the lithics were flakes, but there were also eight bifaces and two projectile points. The points and six of the bifaces were from Lot 3. The ACMP identified one of the points as a felsite Woodland Stemmed point (Middle Woodland, ca. 1800-1300 BP) (catalog # SAIR 3427). The other was an unidentified Saugus jasper point, cataloged as possibly a Late Archaic Wayland Notched-like point (ca. 3600-3000 BP) (catalog # SAIR 3437). No other diagnostic materials were recovered from the trench, and only flakes were recovered from the feature itself. Given the nature of the horizontal and vertical excavation controls, as well as the incomplete excavation of the feature, it was difficult to further interpret the feature. However, the combined evidence suggested that the pit feature might actually have been a dip in the stratigraphy represented by Lot 3, and that the deposit may have been a broad cultural stratum rather than a discrete pit feature. Such a stratum may have been a previous ground surface, and may reflect intensive activity in the area, possibly during Middle Woodland times.

The third pit feature, located in 2E2 W33.5-46/S67.5-72.5, was also a major prehistoric feature. The trench intersected the gravel path, and was excavated in order "to cross [the] old water pipe and locate [the] Indian burial" (Moran 1976c:17). This was no doubt a reference to the conversation Moran had with Guy, a former occupant and blacksmith at the site, during which Guy

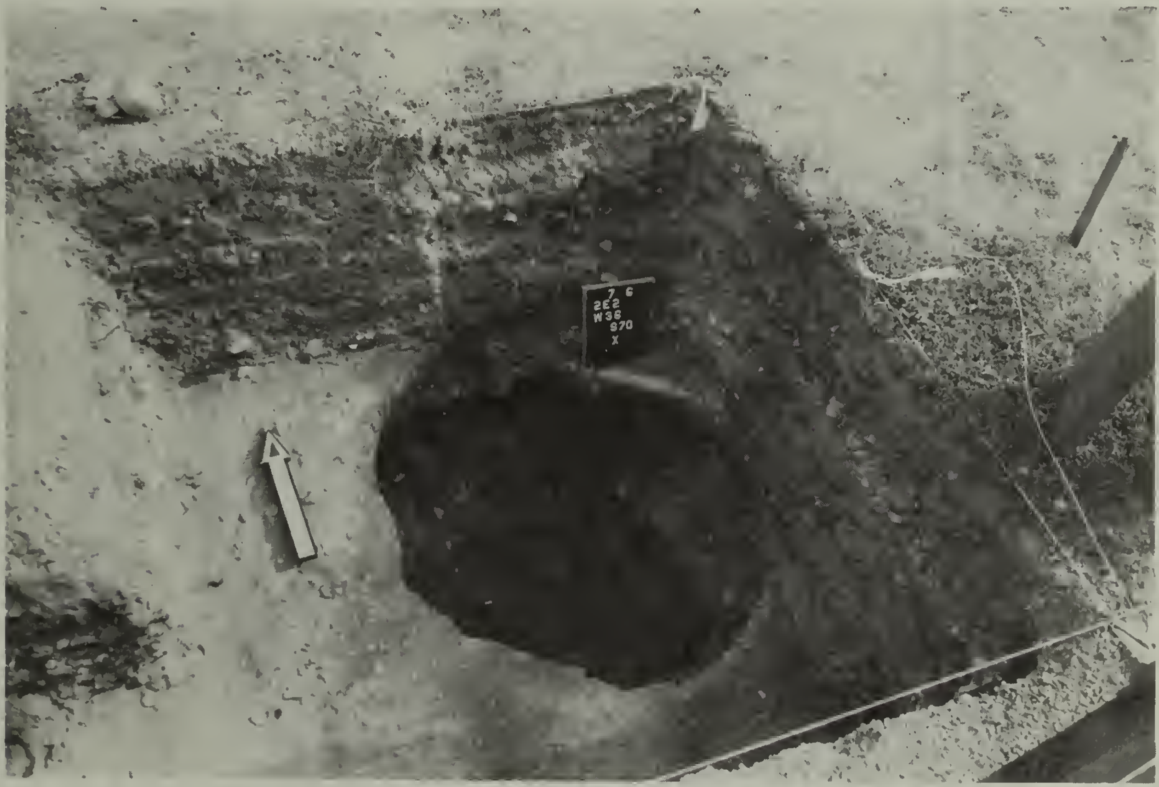


Figure 33. Moran's excavation photograph of the possible prehistoric pit, 2E2 W33.5-46/S67.5-72.5 (Catalog # SAIR 9482).

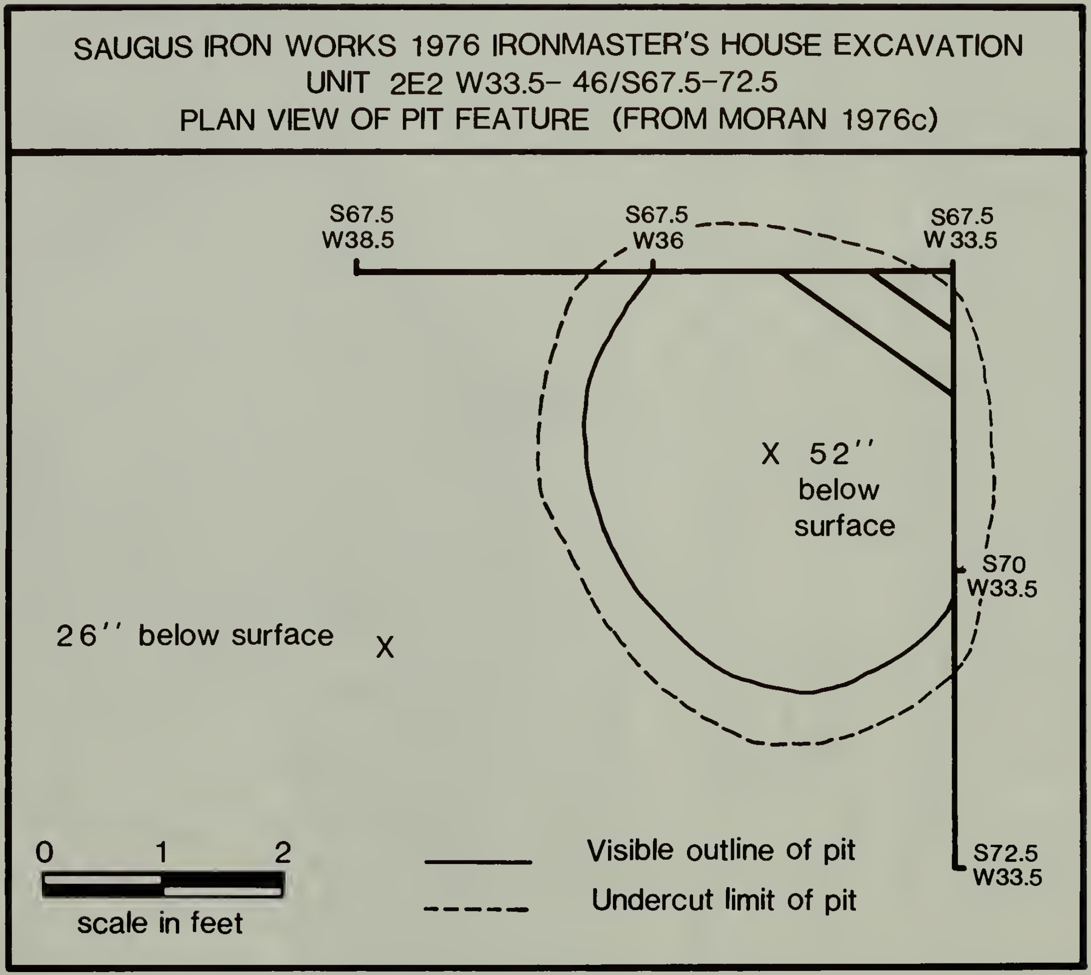


Figure 34. Plan of possible prehistoric pit feature, in unit 2E2 W33.5-46/S67.5-72.5 (from Moran 1976c).

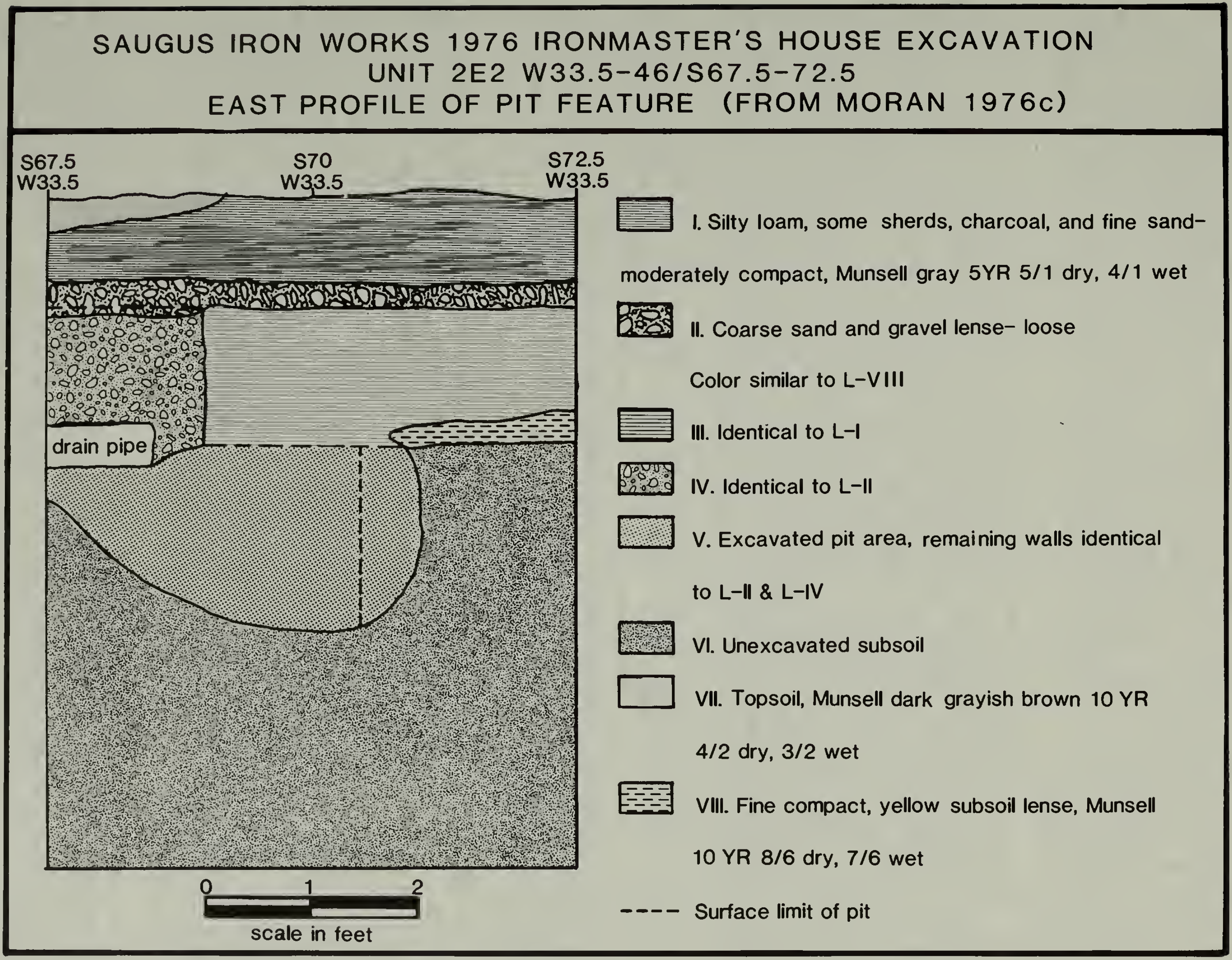

SAUGUS IRON WORKS 1976 IRONMASTER'S HOUSE EXCAVATION
UNIT 2E2 W33.5-46/S67.5-72.5
EAST PROFILE OF PIT FEATURE (FROM MORAN 1976c)
S67.5 W33.5
S70 W33.5
S72.5 W33.5
drain pipe
0
1
2
scale in feet
I. Silty loam, some sherds, charcoal, and fine sand– moderately compact, Munsell gray 5YR 5/1 dry, 4/1 wet
II. Coarse sand and gravel lense– loose Color similar to L–VIII
III. Identical to L–I
IV. Identical to L–II
V. Excavated pit area, remaining walls identical to L–II & L–IV
VI. Unexcavated subsoil
VII. Topsoil, Munsell dark grayish brown 10 YR 4/2 dry, 3/2 wet
VIII. Fine compact, yellow subsoil lense, Munsell 10 YR 8/6 dry, 7/6 wet
---- Surface limit of pit

Figure 35. Profile of possible prehistoric pit feature, in unit 2E2 W33.5-46/S67.5-72.5 (from Moran 1976c).

indicated that a burial had been discovered during a water pipe excavation (Appendix 8). Moran's crew located a sewer pipe, but no evidence of a burial was uncovered. The pit feature was encountered at ca. 26-28 inches below ground surface, beneath the disturbance associated with the modern pipe, and extended into multiple units (Figures 14 and 33). It measured approximately four feet in diameter, and was excavated in its entirety. The base of the feature was reached at 46 inches below ground surface (Moran 1976c:52). Both a measured plan and profile were completed for the feature area, which have been reproduced as Figures 34 and 35.

A large number of proveniences from this trench were represented in the artifact collection, only some of which were clearly associated with a feature. It was unclear if this feature ("Feature 1") referred to the pit feature or to the modern pipe disturbance. Some of the "Feature 1" proveniences contained exclusively prehistoric materials, yet others also contained historic items. The ACMP could not fully resolve the provenience confusion. The total number of prehistoric artifacts from the proveniences which specified "Feature 1" was 335, four of which were ceramic sherds. The total prehistoric assemblage from all proveniences in this trench was 484 objects. There were also 30 lithics which were found to be missing from the collection for this area, which would bring the count to 514. The lithic assemblage was composed primarily of flakes, although there were also 15 bifaces and 3 projectile points. The only diagnostic point type was a felsite Large Triangle (Levanna), which dated to the Late Woodland period, ca. 1300-400 BP. In conjunction with the ceramic sherds, this would indicate a Woodland period activity area.

In addition to the three pit features, Milner identified an area of lithic concentration and a prehistoric soil lens which were mentioned in Moran's field notes. The lithic concentration was located in unit 2E1 E8/S120, which had been disturbed by the installation of a modern utility line. The field notes mentioned that the prehistoric materials, including "a few broken points," were located primarily in the southeast corner of the unit (Moran 1976c:40). The artifact collection contained only 44 prehistoric artifacts from this unit, two of which were biface tip fragments, and the rest of which were flakes. No diagnostic materials were recovered, and the deposit may well have been disturbed by the utility line.

The prehistoric lens was located in unit 2E2 W0/S66.5. The field notes indicated that the lens was encountered at 22 inches below ground surface, and consisted of a one inch "lens of rich black soil...associated with chipped stone flakes" (Moran 1976c:123). The artifact collection for this unit contained only three flakes, two of which were inventoried as provenience "Lot 2, Black Soil." It may be that this thin lens was associated with a previous ground surface, but no further interpretation was possible.

Reported Burial: On May 27, 1976, Edward Guy visited Moran at SAIR and discussed a number of his recollections about the site. Guy had worked as a blacksmith on the property, as had his father Edward, and was familiar with many of the changes made to the property in recent decades (see Historical Background). Moran's notes on his conversation with Guy are reproduced as Appendix 8. Guy reported that an Indian burial had been discovered between the museum door and the kitchen during an excavation for a water pipe between the structures. The burial was found at about two feet below the current ground surface, and reportedly yielded "hundreds of arrowheads and spear points" (Appendix 8). Moran was unable to locate any evidence of prehistoric burials. Unfortunately, none of the materials from the reported burial were retained at the site, and there is no additional record of the discovery. The burial was presumably located in an area which Moran found to be rich in prehistoric materials, and in relative proximity to the two major pit features excavated. The area near the house and museum building thus seems to have been a focus of activity during prehistoric times, at least during the Woodland period if not earlier.

Artifact Concentrations

In addition to the features discussed above, there were other areas of the site which exhibited a relative clustering of prehistoric materials. Unfortunately the identification of actual clusters, using tools of quantitative spatial analysis, was prevented by the provenience problems and the issues of inadequate excavation controls and incomplete data recovery. The data simply did not have enough integrity for detailed analysis. Milner's report (1978) identified the quantities of prehistoric artifacts by provenience on Figures 5-7 and 5-8. However, the figures were somewhat difficult to read and no discussion of the distributions was provided. Thus some general ACMP observations concerning the relative clustering of materials seemed appropriate. It should be noted that the relative quantity of artifacts is not the best measure of clustering, particularly considering the different sizes of excavation units used at SAIR. Density values would be a more accurate measurement of relative clustering, but again the data problems prevented analysis at this level.

The first relative clustering of materials occurred in 2E1 E40/S42.5-52.5, a trench located west of Feature 1, the stone foundation. A total of 147 lithic artifacts were recovered from this trench, including two bifaces and one uniface. Most of these materials (97 items) were from Lot 2, the lowest level excavated in this trench. The depth of this level was not specified, but one of the Lot 1 proveniences was excavated from 0-12 inches. No profiles were available to further evaluate the stratigraphic location of Lot 2, but it is conceivable that Lot 2 underlay the disturbed loamy stratum discussed previously in this report (see Historic Component). In this case, the materials from Lot 2 may have been a relatively undisturbed deposit and thus may indicate an actual cluster of prehistoric materials.

A second clustering was located just east of the museum, in trench 2E2 W40/S45-65. A total of 97 lithic artifacts were recovered from this trench, including four bifaces and two unifaces. The trench was located near, and north of, one of the two major pit features excavated at the site (Figure 14). It appeared that most of the lithics (73) were recovered from Lot 1, presumably the first 10 inches of soil, and thus may represent a disturbed deposit. However, the stratigraphic data from this trench was too fragmentary to further interpret.

A third relative clustering of lithics was in trench 2E1 E48/S62.5-72.5, which was the northern portion of a longer trench. This northern part of the trench was associated with soils outside of the possible "waterway," one of the major historic features on the site, and thus may represent a relatively undisturbed area. A total of 76 lithics were recovered from this provenience, including a Saugus Jasper core and an unidentified projectile point. However, all of the lithics were inventoried as Lot 1 recoveries, and the actual depth of this level was not specified. One of the proveniences was recorded as "Lot 1 to Subsoil," and there were no Lot 2 designations. This may indicate that the trench was excavated as a single unit, with no stratigraphic divisions. The lithics would thus have been recovered from an unspecified depth within the full cultural stratum, including the disturbed level of overlying loam. It was not clear, therefore, whether this concentration of materials represented an actual cluster.

A lesser concentration of lithics occurred in an area east of the Ironmaster's House along east-west transects 2E1 S117.5 and S120, which did not appear on Milner's map of artifact distributions (1978:Figure 5-6). In unit 2E1 E48/S120, which was a 2.5 foot square, 33 lithics were recovered. This square had been disturbed by modern features (Figure 14), but may nonetheless be notable due to its relative concentration of lithics and its proximity to other units along the S117.5 and S120 lines. One of these units, 2E1 E8/S120, was the area of concentration which was noted by Milner (see above section), containing 44 lithics and two bifaces. Unit 2E1 E21.5/S117.5 contained 32 lithics, and unit E24/S120 contained 19 prehistoric items including the only ceramic sherd found on the site outside of the pit feature in 2E2 W33.5-46/S67.5-72.5. Although this area east of the house had been disturbed by the cultivation of the herb garden and other modern features, it may indicate a possible prehistoric activity area.

Relatively high quantities of lithics were also recovered from the multiple units associated with the two major historic features excavated at the site, the stone foundation (Feature 1) and the possible "waterway" (Feature 2). However, these artifacts were located in either the soil used to fill these features or the overlying disturbed loamy stratum. In both cases, these soils were probably imported from an unknown location, and did not represent primary deposits. The artifacts thus did not indicate actual areas of prehistoric activity.

In summary, prehistoric materials were distributed across most of the site, but larger quantities were recovered from certain areas. Given the nature of the Accession #13 data problems, the collection did not merit a detailed spatial analysis, but areas with relative concentrations of artifacts were identified. Those which may actually reflect prehistoric activity areas included an area just west of the stone foundation (Feature 1); an area just east of the museum building, near one of the major pit features and in the vicinity of the reported burial; possibly an area just north of the possible "waterway" feature along transect E48; and possibly east of the house along the S117.5 line. A variety of modern disturbances have affected the archeological record in most of these locations, and excavation controls were not tight enough to better interpret the proposed clusters. However, it did appear that most of the concentrated prehistoric materials occurred in the area between the house and the museum, in Sector 2, near the two excavated pit features.

Lithic Material Types

Saugus Jasper: One of the more interesting aspects of the Accession #13 prehistoric collection was the quantity of artifacts made of Saugus jasper. Saugus jasper is not actually a jasper, or chert, but rather an igneous rhyolite which may have its geological origins in the formation known as the Lynn Volcanics. The major source of this stone is reportedly a small outcrop along the south side of the Saugus River, near Saugus Center and not far from the Park (Luedtke 1987:37; Haynes 1985:42). This outcrop has probably been destroyed by local development (Luedtke 1987:37), although a portion of it is said to exist in the basement of a local house (David Kayser, personal communication 1987). Saugus jasper has also been found in the form of glacial gravels on Boston Harbor beaches, and other as yet unidentified outcrops may also exist (Luedtke 1987:37).

Saugus jasper artifacts have been recovered to limited degrees from numerous New England sites, but the assemblage from SAIR is unusually large. This is not surprising, considering the proximity of the site to the major known quarry. Nonetheless, the collection is an important assemblage of Saugus jasper for a variety of comparative research purposes.

The collection contained a total of 349 artifacts made of Saugus jasper, or 15.4% of the total lithic assemblage. Most of these were flakes, although there were also two cores, five bifaces, four unifaces, and one projectile point. The point was cataloged as unidentified, possibly a Late Archaic Wayland Notched-like type (Catalog # SAIR 3437).

The Saugus jasper artifacts were distributed across most of the site in much the same basic pattern as the rest of the lithic assemblage. By far the largest concentrations occurred in Sector 2 in the proveniences associated with the two major pit features. The first of these pits was located just north of the Ironmaster's House in trench 2E2 W16.5/S87-95. A total of 121 Saugus jasper artifacts were recovered from this trench, including the one Saugus jasper projectile point from the site and two bifaces. The 121 artifacts accounted for 14.3% of the total lithic assemblage from the trench.

The second pit feature was located east of the museum in trench 2E2 W33.5-46/S67.5-72.5. There were 64 Saugus jasper artifacts from this set of proveniences, including one biface. Of these, 44 were identified specifically as from "Feature 1," which may well have been the pit feature. These quantities represented, respectively, 13.3% of the total lithic assemblage for the full set of proveniences as well as for the "Feature 1" proveniences. The only other sizeable assemblage of Saugus jasper was recovered from the trench just north of the latter pit feature and east of the museum (2E2 W40/S45-65). These 27 artifacts included one biface and two unifaces.

Thus the primary concentration of Saugus jasper on the site was in the general area between the house and museum, in proximity to the two major pit features, as well as the reported burial. The pit features were associated on a very general level with Woodland period activities, and thus the intensive use of Saugus jasper on the site may also have been during the general Woodland time frame. No further chronological interpretation was possible given the collection's data problems.

The use of non-local jaspers, such as "Pennsylvania jasper," on Massachusetts sites is often associated with Middle Woodland period activities, and possibly with the later part of the Middle Woodland period (Luedtke 1987:40). Although Saugus jasper is actually a volcanic stone, and in this case a local raw material rather than an imported "exotic" material, it nonetheless has similar qualities to the more exotic jaspers and is often considered in the same general category. It would thus be interesting to address the question of when Saugus jasper was heavily utilized at the site, and if its use bore any relationship to the use of jaspers at other Massachusetts sites. Unfortunately, although the site was probably utilized from the Middle Archaic through the Late Woodland periods, the Accession #13 data was not diagnostic or reliable enough to analyze the question of chronology and the differential use of raw material types. Additional, better controlled excavation would be needed to further address this question.

The assemblage of Saugus jasper from the site is also significant as a "type collection," in that a wide range of physical characteristics are exhibited for what is the same basic raw material type. The color varied from light pink or lavender (e.g., Munsell color 5R 5/3) to deep red-brown or maroon (e.g., Munsell 7.5R 3/4, 5R 3/3). The surface of the artifacts was often dull, although waxy, chert-like surfaces were also present. Numerous pieces exhibited the cream-colored veins often associated with Saugus jaspers, though many did not. The ACMP did not quantify these different characteristics. Barbara Luedtke, an archeologist at the University of Massachusetts in Boston, who has done extensive research on the lithics of eastern Massachusetts, met with the ACMP to review the assemblage of Saugus jasper. The consensus from that meeting was that the unusually large size of the assemblage and the variety of characteristics provided a number of research options for archeologists interested in Saugus jasper.

Other Raw Materials: Felsite was by far the most common raw material type represented in the Accession #13 lithic assemblage. There were 1853 felsite artifacts, or 81.8% of the total lithics. Saugus Jasper was the next most common material, accounting for 349 flakes, or 15.4% of the assemblage. Much smaller quantities of other raw materials were present, as listed in Table 13. The ACMP counts and percents differed substantially from Milner's lithic identifications, which were based upon categories recommended by a geologist at Bryn Mawr College in Pennsylvania. The ACMP categories reflect those more typically used by New England archeologists. Some of the differences may have been in name only (e.g., felsite in the ACMP inventory vs. rhyolite in Milner's inventory), but others were more distinct, particularly the relative quantities of chert and Saugus Jasper and the distinction between basalt (Milner) and felsite (ACMP). These differences are summarized in Table 13. The ACMP did no further analysis of the raw materials.

Table 13

Lithic Raw Material Types: ACMP & Milner Identifications

ACMP

Type	Count	%
Felsite	1853	81.8
Saugus Jasper	349	15.4
Quartzite	22	1.0
Chert	13	.6
Argillite	11	.5
Quartz	4	.2
Unidentified	13	.6
	2265	

Milner

Type	Count	%
Basalt	853	38.6
Rhyolite	578	26.2
Chert	521	23.6
Saugus Jasper	251	11.4
Quartz	4	.2
Brown Chalcedony	1	
	2208	

Lithic Reduction

The ACMP classification system divided lithic debitage into three basic categories: shatter/block, decortication flakes, and flakes. This breakdown did not account for distinctions between secondary and retouch flakes, and no further analysis was done. However, it is worth noting that the categories differed from those established by Milner, which were somewhat more extensive (see Prior Research Results). Based upon their inventory counts, Milner proposed that the lithic processing which occurred on the site represented the stages between the first stages of reduction and the final retouch stages. It is true that only two cores were recovered from the site, and is thus possible that the lithics were quarried and partially reduced elsewhere. However, it is also possible that the collection did not reflect the actual range of lithics present at the site, given the data problems and the possibility of incomplete recovery of prehistoric materials (see Collection Summary). This is particularly true in the case of retouch flakes, which are small and are easily missed unless the recovery strategy takes them into account. While it cannot be said with confidence that only certain stages of lithic reduction occurred on the site, it does seem possible that primary reduction occurred elsewhere. The counts for ACMP lithic categories are provided on Table 14.

Summary and Research Potential

The area surrounding the Ironmaster's House was once part of an important prehistoric site. This site encompassed the

Table 14

Lithic Artifact Counts, Accession #13

Projectile Points	12
Bifaces	39
Unifaces	6
Cores	2
Shatter/Block	11
Decortication Flakes	285
Flakes	1910
Total	2265

blufftop area near the house, which overlooks an estuary on the Saugus River, as well as the floodplain area below and the terrace on the east side of the river (Figure 1). Diagnostic artifacts from these areas (Accessions #13, 14, and 42) suggest that the site was utilized over a long period of time, from ca. 8000 to 400 BP, although it may not have been continuously utilized during the entire time. Unfortunately, the lack of good stratigraphic data and absolute dates prevented a more detailed chronological examination and the identification of any potential gaps in the sequence.

There is little doubt that this was a desirable site for prehistoric activity. The physiographic location is analogous to other important estuary head sites which have been recorded in southeastern New England (e.g., the Neville site on the Merrimack River [Dincauze 1976]). Estuary head sites are known to have been popular fishing camps and occupation sites throughout much of prehistory. They were chosen as occupation sites during at least the Middle and Late Archaic as well as the Woodland periods (MHC 1982:19-21).

It was not clear, based upon the available data, to what extent the SAIR site was utilized during different periods of prehistory. There was no direct evidence for seasonal or more extended occupation, although this may simply be due to the limited and poorly controlled nature of the archeological testing and the lack of detailed excavation records. Many of the prehistoric materials were recovered from disturbed contexts, possibly imported from another area of the site as fill for the historic features or as landscaping loam. The few pit features associated with prehistoric materials could not be dated with confidence, although they appeared to be generally associated with a Woodland period context. These features and the high concentration of lithics in the same area suggested that the area between the house and the museum was a focus of activity during at least the Woodland period. A burial was also reported to have been discovered in this area by construction crews, and although nothing remains from this feature, it may well have been associated with Woodland activity.

It was evident that the site did retain areas with intact prehistoric deposits, particularly in the vicinity of the house and museum. These deposits were often encountered between 20 and 30 inches below the ground surface. The ACMP could not determine how often an intact prehistoric ground surface or feature was encountered, as the excavation was focused on finding Iron Works period features and the field notes did not consistently report on the general stratigraphy. Certainly any evidence of such deposits has been disturbed in the areas excavated by both Moran and Robbins. In other areas, prehistoric deposits may have been disturbed by the construction of historic features and additional landscaping activities. Nonetheless, certain portions of the grounds near the house may remain undisturbed at the depth associated with prehistoric materials. Although the floodplain was highly disturbed during the reconstruction of the Iron Works, the east bank may also retain some stratigraphic integrity.

A variety of potential research questions could be addressed through further work at the site. The topic of settlement patterns and subsistence strategies would be of particular interest. A number of researchers have attempted to synthesize the information available on the distribution of New England sites during different periods of prehistory (e.g., Dincauze and Mulholland 1977; Thorbahn et al. 1980; MHC 1982). This has resulted in hypotheses concerning what changes were occurring in the settlement and subsistence strategies of prehistoric human communities. It appears that environmental conditions became gradually more favorable for human populations in postglacial New England, characterized by warmer temperatures, the northward spread of deciduous forests, and stabilizing water levels (Dincauze and Mulholland 1977:448-450). This seems to have led to increased population densities and the establishment of relatively successful foraging communities throughout much of New England by Middle Archaic times (ca. 8000 BP), particularly in rich habitats (Dincauze and Mulholland 1977:452-454). Estuary heads were such habitats, and appear to have been the focus of seasonally intensive occupations by Middle Archaic times (Dincauze and Mulholland 1977:441). Additional work has suggested that the spatial density of sites appears to shift over time, and may reflect a gradual movement from interior sites during the Archaic to settlements based upon coastal subsistence in the Early Woodland (Thorbahn et al. 1980:46). Estuary head sites appear to have been occupied throughout this time (MHC 1982:19-21).

pits with lithic concentrations. No hearths were identified, and no data was collected to address questions of seasonality or subsistence.

Clearly there are many possible approaches to the further study of the SAIR site. Although relatively abundant evidence of prehistoric activity has been recovered from this site, none of the research was systematic in regard to the prehistoric component of the site, or oriented to answering the kinds of questions presented above. There are several avenues for additional research on the prehistoric component of this site. Using the collections not cataloged during the ACMP, a more detailed study could be done concerning the presence of chronologically diagnostic artifacts, and functionally distinct groundstone tools, for further information about when the site was occupied and what range of activities took place. More research could also be done on the Saugus jasper in the Accession #13 collection as well as those collections not cataloged by the ACMP. In particular, this would include the prehistoric materials in Robbins' collection (Accession #1), the LaFrance collection of prehistoric objects recovered from the floodplain (Accession #14), the Small collection from the east side of the river (Accession #42), and the stone plummet from the parking lot (Accession #15).

In order to address more specific questions about the site, its different manifestations through time, and its significance to the understanding of regional settlement and subsistence patterns, additional fieldwork would have to be conducted. Although much of the property has been disturbed, there should also be relatively undisturbed areas, or areas buried under landscaping fill, with the potential for prehistoric deposits. Any future work at the site should be carefully conducted, using tight horizontal and vertical controls, with carefully maintained records and clear separation of historic and prehistoric deposits. The work should include the recovery of materials which would aid in addressing ecological and subsistence questions, such as soil samples for the extraction of pollen and botanical remains, and bone and shell. The SAIR site was certainly an important location for prehistoric populations, and could potentially contribute much to our understanding of the cultures which flourished in the area prior to the establishment of the Iron Works.

Management Summary

The Saugus Iron Works National Historic Site (SAIR) has been the focus of several archeological projects. The major project was conducted between 1948 and 1953 by Roland Wells Robbins. Following Robbins' excavation, the Iron Works industrial structures were reconstructed in the floodplain area of the property, in large part based upon the archeological findings. The other major excavation took place west of the industrial area, on top of the bluff and in the yard of the Iron Works House. This project was undertaken in 1976 by Geoffrey Moran of Brown University, and was later reported on by John Milner Associates (Moran 1976a; Milner 1978). This excavation was the focus of the Archeological Collections Management Project (ACMP) for SAIR, as the artifact collection (Accession #13) had never been cataloged. At the time of Moran's excavation, the house was known as the Ironmaster's House, and thus the excavation was referred to as the Ironmaster's House excavation. The collection, the accession book, and the catalog cards also refer to the site as the Ironmaster's House. This name has thus been used throughout the bulk of this report.

Additional archeological work at the site was minor and has been summarized in the opening section of this report. The ACMP also cataloged two small miscellaneous collections which had been recovered from archeological contexts at the Park, although not during systematic archeological projects (Accessions #43, 45). Accession #43 was recovered during renovation work in the Iron Works House crawlspace, and Accession #45 was collected from various places on Park property by summer YCC employees.

Collection Summary

The ACMP cataloged a total of 15,416 artifacts and 103 archival items in the Accession #13 collection. Although the majority of the Accession #13 collection consisted of historic materials, there were also 2270 prehistoric artifacts. The two miscellaneous collections (Accessions #43 and 45) were much smaller, containing 194 and 18 items, respectively. There were also some artifact classes which were weighed rather than counted, and these totalled 3644.6 grams for Accession #13, and 97.2 grams for Accession #43 (Appendix 6). Using the original artifact inventories from these collections, it was determined that 959 artifacts were missing from the Accession #13 collection, while only 6 items from Accession #43 and one item from Accession #45 were missing.

The catalog numbers assigned to these three collections included SAIR 5100-9485, 3424-3476, and 4843-4846, a total of 4443 catalog lots. The latter two groups of numbers reflect the 57 lots in Accession #13 which had been previously cataloged and

stone known as Saugus jasper. This is a significant assemblage for researchers interested in New England lithics.

Prehistoric remains have been recovered from most of the SAIR property, including the blufftop area, the floodplain, and the terrace on the east bank of the river. Although the major focus of Park interpretation is the Iron Works period, the site's prehistory is also a major component of the property's cultural resources. This was no doubt a significant prehistoric site, and is analogous to other important estuary head sites which have been identified in other areas of southern New England. The prehistoric component of the Iron Works property has never been systematically investigated. Further study could contribute to our understanding of the settlement and subsistence patterns of prehistoric populations in New England. Evidence from Moran's excavation suggested that at least portions of the site retain stratigraphic integrity, and that further research of the prehistoric component should be possible.

Recommendations

Much of the Saugus Iron Works property has been disturbed, either during archeological excavations, landscaping activities, or the intrusion of other modern features. The floodplain area was extensively excavated in the 1940s and 1950s, and little if any intact area remains. The east bank of the river has been partially disturbed by the construction of a carpenter's shop and blacksmith shop, and by the use of the area for heavy equipment during the Iron Works restoration. However, this bank has been less disturbed than other areas and should retain integrity for further work.

The area near the Ironmaster's House was excavated less intensively than the floodplain, although a variety of historic disturbances have also contributed to the loss of intact deposits. Nonetheless, certain areas appear to be relatively undisturbed and could be investigated in the future. These can be best identified by compiling a variety of source information. The ACMP archeological site plan shows Moran's 1976 excavation areas (Figure 8). We have also created a plan which shows the location of various known utilities and modern surface features (Figure 11). Used in conjunction with each other, these maps indicate the nature of much of the site disturbance and suggest areas which may have been left intact. Unfortunately, the areas near the house which were disturbed during Robbins' tenure at the site, through both excavation and landscaping activities, could not be specifically identified. Brown's report of Robbins' excavations should also be consulted for a general description of these disturbed areas (Brown 1975).

The two major historic features located during Moran's 1976 excavation, the stone foundation and the possible waterway, were not excavated in their entirety and thus retain some research potential. These features may be of interpretive interest to the Park, particularly the possible 17th century waterway. Additional excavation would be recommended to better understand either feature.

The Iron Works property was also a significant prehistoric site. Several of the collections at the Park contain prehistoric assemblages, and would merit further study (Accession #1, 13, 14, 15, and 42). These collections could be used to investigate a number of research questions, such as the range of activities which occurred on the site, and the nature of a large assemblage of Saugus jasper. Unfortunately, much of the data is poorly provenienced, limiting the scope of questions which may be asked. Additional archeological work at the site would also be possible, and a variety of potential research questions have been identified in the ACMP Evaluation section of this report.

REFERENCES CITED

Albright, John, Orville W. Carroll, and Abbott Lowell Cummings
1977 Historic Structure Report, Ironmaster's House Historical and Architectural Data and a History of Ownership. Denver Service Center, Historic Preservation Division, National Park Service, Denver.

American Association of Museums (AAM)
1984 Caring for Collections. Strategies for Conservation, Maintenance and Documentation. AAM, Washington, D.C.

Austin, John C.
1978 Some Recent Gifts of Creamware to Colonial Williamsburg. In English Pottery and Porcelain: An Historical Survey, edited by Paul Atterbury, pp. 37-41. Main Street Press, New York.

Barber, E. A.
1906 Tin Enameled Pottery. Philadelphia Museum, Philadelphia.

Barber, Russell J.
1973a Report on the Saugus Ironworks Collections and Their Cataloging. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1973b Osteology of the Faunal Remains from the Saugus Ironworks Site. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1987 Personal Communication.

Beaudry, Mary C.
1975 Saugus Iron Works National Historic Site, Archaeology and the Documentary Record. Ms. (and Appendix to Brown 1975) on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Binford, Lewis R.
1978 A New Method of Calculating Dates from Kaolin Pipe Stem Samples. In Historical Archaeology: A Guide to Substantive and Theoretical Contributions, edited by Robert L. Schuyler, pp. 66-67. Baywood Publishing Company, Farmingdale, NY.

Boger, Louise Ade
1971 The Dictionary of World Pottery and Porcelain. Charles Scribner's Sons, New York.

Brown, Marley Roberts III
1975 Saugus Iron Works National Historic Site, An Evaluation of Roland Wells Robbins Archaeology. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Cantwell, Anne-Marie, James B. Griffin, and Nan A. Rothschild, editors
1981 The Research Potential of Anthropological Museum Collections. Annals of the New York Academy of Sciences, Vol. 376. New York.

Carlson, Stephen P.
1973 Saugus Iron Works National Historic Site, Historical Sketch. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1977 Personal Communication.

Carroll, Orville W.
1979 Completion Report, Stonework Repairs at Saugus Iron Works. Ms. on file, North Atlantic Historic Preservation Center, North Atlantic Regional Office, National Park Service, Boston.

1985 Completion Report, Rehabilitation of the Iron Works Farm House. Ms. on file, North Atlantic Historic Preservation Center, North Atlantic Regional Office, National Park Service, Boston.

1988 Personal Communication.

Chaplin, Raymond E.
1971 The Study of Animal Bones from Archaeological Sites. Seminar Press, New York.

Chenhall, Robert G.
1975 Museum Cataloging in the Computer Age. American Association for State and Local History, Nashville, TN.

Christenson, Andrew L.
1979 The Role of Museums in Cultural Resource Management. American Antiquity 44:161-163.

Clarke, Mary Stetson
1968 Pioneer Iron Works. Chilton Book Company, Philadelphia.

Cotter, John L.

1972a Observations: Saugus Archeological Collection Examined and Inventoried at Harpers Ferry May 31-June 2 Following Removal from Beneath Storage Shed at Saugus. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1972b Letter to Charles W. Tremer, June 20. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Cummings, Abbott Lowell

1975 "The Ironworks Farm" in Saugus, Essex County, Massachusetts; The History of its Ownership from the Origins of the Town to the 20th Century. (Also appears in Albright, Carroll, and Cummings 1977:349-428). Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Deetz, James

1977 *In Small Things Forgotten: The Archeology of Early American Life*. Anchor Books, New York.

DeMarco, William M.

1983 Saugus Iron Works, A Social & Cultural History. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Dincauze, Dena Ferran

1976 *The Neville Site, 8,000 Years at Amoskeag, Manchester, New Hampshire*. Peabody Museum Monographs No. 4. Harvard University, Cambridge, MA.

Dincauze, Dena F. and Mitchell T. Mulholland

1977 Early and Middle Archaic Site Distributions and Habitats in Southern New England. In *Amerinds and Their Paleoenvironments in Northeastern North America*, edited by Walter S. Newman and Bert Salwen. *Annals of the New York Academy of Sciences* 288:439-456. New York.

Dwyer, Alison

1988 Personal Communication.

Godden, Geoffrey A.

1975 *British Pottery*. Clarkson N. Potter, New York.

Gordon, Elinor

1975 *Chinese Export Porcelain: An Historical Survey*. Main Street Press, New York.

Greer, Georgeanna H.
1981 American Stonewares, the Art and Craft of Utilitarian Potters. Schiffer Publishing Limited, Exton, PA.

Harrington, J. C.
1978 Dating Stem Fragments of Seventeenth and Eighteenth Century Clay Tobacco Pipes. In Historical Archaeology: A Guide to Substantive and Theoretical Contributions, edited by Robert L. Schuyler, pp. 63-65. Baywood Publishing Company, Farmingdale, NY.

Hartley, Edward Neal
1957 Ironworks on the Saugus: The Lynn and Braintree Ventures of the Company of Undertakers of the Ironworks in New England. University of Oklahoma Press, Norman, Oklahoma.

Haynes, Henry W.
1985 Localities of Quarries Worked by the Indians for Material for Their Stone Implements. Bulletin of the Massachusetts Archaeological Society 46:42-43.

Hill, J. N. and R. K. Evans
1972 A Model for Classification and Typology. In Models in Archaeology, edited by David L. Clark, pp. 231-273. Methuen & Co. Ltd., London.

Hitchcock, Ann
1987 Report to Congress. Ms. (Memorandum) on file, Eastern Archeological Field Laboratory, North Atlantic Regional Office, National Park Service, Charlestown, MA.

Hovig, Larry J.
1976 Letter to John D. McDermott, Director, Office of Review and Compliance, Advisory Council on Historic Preservation, March 4, 1976. Ms. on file, Project Files, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Jones, Olive
1988 Personal Communication.

Jones, Olive and Catherine Sullivan
1985 The Parks Canada Glass Glossary for the Description of Containers, Tableware, Flat Glass, and Closures. Studies in Archaeology, Architecture and History. National Historic Parks and Sites Branch, Parks Canada, Ottawa.

Kayser, David
1987 Personal Communication.

Kayser, David
1988 Personal Communication.

Ketchum, William C. Jr.
1978 Yellowware. Americana 6:42-44.

Lewis, Ariselda
1969 A Collector's History of English Pottery. Viking Press, New York.

Loparto, Leonard W.
1987 Personal Communication.

Luedtke, Barbara E.
1986 Regional Variation in Massachusetts Ceramics. North American Archaeologist 7(2):113-135.

1987 The Pennsylvania Connection: Jasper at Massachusetts Sites. Bulletin of the Massachusetts Archaeological Society 48:37-47.

Marquardt, William H., Anta Montet-White, and Sandra C. Scholtz
1982 Resolving the Crisis in Archaeological Collections Management. American Antiquity 47:409-418.

Massachusetts Historical Commission (MHC)
1982 Historic and Archaeological Resources of the Boston Area. Massachusetts Historical Commission, Office of the Massachusetts Secretary of State, Boston.

1984 Guide to Prehistoric Site Files and Artifact Classification System. Massachusetts Historical Commission, Office of the Massachusetts Secretary of State, Boston.

McManamon, Francis P.
1978 Archeological Investigation of the Impact Area for Sewer Line Connections at Saugus Ironworks NHS. Ms. on file, Project Files, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

McManamon, Francis P. (editor)
1984 Chapters in the Archeology of Cape Cod. 2 vols. Cultural Resources Management Study No. 8. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Miller, George L.
1980 Classification and Economic Scaling of 19th Century Ceramics. Historical Archaeology 14:1-40.

Miller, George L.
1984a Marketing Ceramics in North America. Winterthur Portfolio 19(1):1-5.

1984b George M. Coates, Pottery Merchant of Philadelphia, 1817-1831. Winterthur Portfolio 19(1):37-49.

Miller, George L. and Catherine Sullivan
1981 Machine-made Glass Containers and the End of Production for Mouth-blown Bottles. Research Bulletin No. 171. Parks Canada, Ottawa.

Miller, J. Jefferson II and Lyle M. Stone
1970 Eighteenth-Century Ceramics from Fort Michilimackinac. Smithsonian Studies in History and Technology No. 4. Smithsonian Institution Press, Washington, D. C.

John Milner Associates (Milner)
1978 Archeological Investigations at Saugus Ironworks National Historic Site, 1976. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Moore, Hudson N.
1909 Wedgwood and His Imitators. Frederick A. Stokes, New York.

Moran, Geoffrey P.
1976a Preliminary Report of Test Excavations at the Saugus Ironworks National Historic Site. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1976b Letter to Ricardo Torres-Reyes, Associate Director, Professional Services, North Atlantic Region, National Park Service, July 28, 1976. Ms. on file, Project Files, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1976c Field notes from the 1976 Ironmasters House excavations (Catalog # SAIR 9481). Ms. on file, Saugus Iron Works National Historic Site, Saugus, MA.

n.d. Archaeological Survey in Vicinity of Carpenter's Shop: Saugus Ironworks National Historic Site. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Mountford, Arnold R.
1973 Staffordshire Salt-Glazed Stoneware. In Ceramics in America, edited by Ian M. G. Quimby, pp. 197-215. Winterthur Conference Report 1972. University of Virginia Press, Charlottesville, VA.

National Park Service (NPS)
1984 Museum Handbook. Part II, Museum Records. Curatorial Services, National Park Service, Washington, D. C.

1987 User Manual, Automated National Catalog System. Curatorial Services Division, National Park Service, Washington, D.C.

n.d. Project Files. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Nelson, Lee H.
1968 Nail Chronology as an Aid to Dating Old Buildings. Technical Leaflet 48, Vol. 211 No. 11. American Association of State and Local History, Nashville, TN.

Noel Hume, Ivor
1960 Rouen Faience in Eighteenth Century America. Antiques 78:559-561.

1978a Pearlware: Forgotten Milestone of English Ceramic History. In English Pottery and Porcelain: An Historical Survey, edited by Paul Atterbury, pp. 42-49. Main Street Press, New York.

1978b The Rise and Fall of English White Salt-Glazed Stoneware, Parts I and II. In English Pottery and Porcelain: An Historical Survey, edited by Paul Atterbury, pp. 16-29. Main Street Press, New York.

1980 A Guide to Artifacts of Colonial America. Reprinted. Alfred A. Knopf Inc., New York. Originally published 1969.

Olsen, Stanley
1971 Zooarchaeology: Animal Bones in Archaeology and their Interpretation. McCaleb Module 2. Addison Wesley Modular Publications, Reading, MA.

Peabody Museum
n.d. Untitled manuscript describing the proposed stages of the Saugus Iron Works conservation and cataloging project. Ms. on file, Saugus Iron Works National Historic Site, Saugus, MA.

Piechota, Dennis V.
1973 Report on Contract No. CX4220 3 002, The Recording and Preservation of the Archaeological Collection, Saugus Ironworks National Historic Site. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Ramsay, John
1976 American Potters and Pottery. Reprinted. Ars Ceramica Ltd., Ann Arbor, MI. Originally published 1939, Colonial Press, Clinton, MA.

Robbins, Roland Wells
1949 Field notes, Notebook #2, April 29, 1949 - July 19, 1949, Bound Book #1. Ms. on file, Saugus Iron Works National Historic Site, Saugus, MA.

1950 Field notes, Notebook #6, July 4, 1950 - December 30, 1950, Bound Book #1. Ms. on file, Saugus Iron Works National Historic Site, Saugus, MA.

Roberts, Daniel
1987 Personal Communication.

Solon, L. M.
1906 The Art of the Old English Potter. John Francis, New York.

South, Stanley
1978 Evolution and Horizon as Revealed in Ceramic Analysis in Historical Archaeology. In Historical Archaeology: A Guide to Substantive and Theoretical Contributions, edited by Robert L. Schuyler, pp. 68-82. Baywood Publishing Company, New York.

Stewart, Regina and Geraldine Cosentino
1977 Stoneware. Golden Press, New York.

Studkinsky, Frank
1988 Personal Communication.

Synenki, Alan T. and Sheila Charles
1983a Archeological Collections Management at Salem Maritime National Historic Site. ACMP Series No. 1. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1983b Archeological Collections Management at Morristown National Historical Park. ACMP Series No. 2. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Synenki, Alan T. and Sheila Charles
1984 Archeological Collections Management of the Great Island Tavern Site. ACMP Series No. 3. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Thorbahn, Peter, Leonard W. Loparto, Deborah C. Cox, and Brona Simon
1980 Prehistoric Settlement Processes in Southern New England: A Unified Approach to Cultural Resource Management and Archaeological Research. Ms. on file, Massachusetts Historical Commission, Office of the Massachusetts Secretary of State, Boston.

Towle, Linda A.
1985 Final Report, Assessment Phase of the Archeological Collections Accountability Project. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1987 Introduction: An Overview of Archeological Collections Management. In Archeological Collections Management at Minute Man National Historical Park, vol. 1, edited by Linda A. Towle and Darcie A. MacMahon, pp. 5-18. ACMP Series No. 4. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Towle, Linda A. and Darcie A. MacMahon
1986 Archeological Collections Management at Minute Man National Historical Park, Massachusetts, vols. 2-4. ACMP Series No. 4. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

1987 Archeological Collections Management at Minute Man National Historical Park, Massachusetts, vol. 1. ACMP Series No. 4. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Towner, Donald
1957 English Cream Colored Earthenware. Faber and Faber, London.

1965 The Leeds Pottery. Traplinger, New York.

Trent, Robert F.
1982 A History of Occupancy of the Ironworks Farm House in Saugus, Massachusetts, from 1681 to 1720, with Genealogical Background of the Appleton Family of Ipswich. Ms. on file, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Turnbaugh, Sarah Peabody

1983 17th and 18th Century Lead-Glazed Redwares in the Massachusetts Bay Colony. Historical Archaeology 17 (1):3-17.

1985 Imitation, Innovation, and Permutation: The Americanization of Bay Colony Lead-Glazed Redwares. In Domestic Pottery of the Northeastern United States, edited by Sarah Peabody Turnbaugh, pp. 209-228. Academic Press, Orlando, FL.

Van Rensselaer, Susan

1966 Banded Creamware. Antiques 90:337-341.

Wagers, Jerry D.

1976 Letter to Elizabeth R. Amadon, Massachusetts Historical Commission, February 12, 1976. Ms. on file, Project Files, Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Watkins, Lura Woodside

1959 Early New England Pottery. Old Sturbridge Village, Sturbridge, MA.

1968 Early New England Potters and Their Wares. Reprinted. Archon Books. Originally published 1950, Harvard University Press, Cambridge, MA.

Webster, Donald Blake

1971 Decorated Stoneware Pottery of North America. Charles E. Tuttle, Rutland, VT.

Woodhouse, Charles Platten

1974 The World's Master Potters: Their Techniques and Art. Pitman Publishing, London.

Appendix 1

SAIR Archeological Collections
1985 Accountability Project Summary Tables

Archeological Collections Accountability Project

PARK NAME: SAIR
(Acronym)

Site	Archeologist (Affiliation)	Date(s) Of Fieldwork	Report Reference	Artifact Inventory in Report (Y/N)	Provenience Data (Y/N)	Park Accession #	Accession Date	Acquisition Type	Catalog #'s
Iron Works' Furnace (Robbins) (1948-1953)									
1) Furnace	John L. Cotter (NPS)	1971 (Collection Analysis)	Cotter 1971	N	N				
2) Furnace	Russell Barber* (NPS)	1973 (Collection Analysis)	Barber 1973a 1973b	Y Y	N N	01	7/1/1969	Donation	Cataloged (Mixed w/ nonarcheological materials)
3) Furnace	Marley Roberts Brown III (Brown University)	1975? (analysis of Robbins' excavation)	Brown 1975	N	N				
4) Ironmaster's House	Geoffrey P. Moran (Brown University)	May-July 1976	Moran 1976a	N	N	13	Jan. 1978	Field Collection	Not Cataloged
5) Ironmaster's House	John Milner Associates	(analyzed Moran's artifacts)	Milner 1978	Historic=N Prehist=Y	Some	13	Jan. 1978	Field Collection	Not Cataloged

*Collection apparently cataloged at this time.

PARK NAME: SAIR
(Acronym)

Inventoried by ACMP	Estimated # Artifacts	Est. # Lots (Gross Material Types)	Estimated # of ACMP lots	Est. # Lots (Finest Breakdown)	Storage Location	Storage Containers	Artifacts sorted by	Documentation Field Notes	 Maps	 Photos
1)										
2) No	4500	----------	-------	---------	Museum Storage (cabinets & shelves)	----------	----------	Yes	None	Yes
3)										
4) No	10,000	See #5 Below	See #5 Below	See #5 below	Museum storage Cabinet 9, Drawers 1-15	Boxes within drawers	Provenience	None	Yes	None
5) No	Prehist=2208 Historic=10,000	Prehist=22 Historic=1415	Prehist=61 Historic=4405	Prehist=61 (same as ACMP) Historic=4972	Museum storage Cabinet 9, Drawers 1-15	Boxes within drawers	Provenience	None	Yes	None

Archeological Collections Accountability Project

PARK NAME: SAIR
(Acronym)

Site	Archeologist (Affiliation)	Date(s) Of Fieldwork	Report Reference	Artifact Inventory in Report (Y/N)	Provenience Data (Y/N)	Park Accession #	Accession Date	Acquisition Type	Catalog #'s
6) Carpenter's Shop	Geoffry P. Moran (Brown University)	August 1976	Moran 1976b	N	Y	Included w/ Accession #13?	Jan. 1978?	Field Collection	Not Cataloged
7) Parking Lot	------------	1978?	--------	--------	-------	15	Aug. 1978	Field Collection	Not Cataloged
8) LaFrance Collection	Joseph LaFrance	(during Robbins work)	--------	--------	-------	14	Sept. 1978	Gift	in process
9) Various places in park	staff	1982?	--------	--------	------	19	Aug. 1982	Field Collection	Cataloged
10) 15 Holland St., Saugus	George Small	-----------	-------	--------	------	42	20 Nov 1984	Gift	in process
11) under Iron Worker's House Addition	NAR Preservation Team	Nov. 1982	-------	---------	------	43	20 Nov 1984	Field Collection	Not Cataloged

PARK NAME: SAIR
(Acronym)

Inventoried by ACMP	Estimated # Artifacts	Est. # Lots (Gross Material Types)	Estimated # of ACMP lots	Est. # Lots (Finest Breakdown)	Storage Location	Storage Containers	Artifacts sorted by	Documentation Field Notes	Maps	Photos
6) No	?							None	Yes	None
7) No	1 plummet	1	1	1	Museum Storage			"	None	"
8) No	1408?	--------------	----------	-----------	Museum Storage			"	"	"
9) No	16	--------------	----------	-----------	Museum Storage			"	"	"
10) No	16	--------------	----------	-----------	Museum Storage			"	"	"
11) No	198	10	30	50	David Kayser's office	Cardboard box	Not sorted	"	"	"

Archeological Collections Accountability Project

PARK NAME: SAIR
(Acronym)

Site	Archeologist (Affiliation)	Date(s) Of Fieldwork	Report Reference	Artifact Inventory in Report (Y/N)	Provenience Data (Y/N)	Park Accession #	Accession Date	Acquisition Type	Catalog #'s
12) Various places in the park	YCC students	July 1983	-------	-------	------	45	20 Nov 1984	Field Collection	Not Cataloged
13) Sewer line	Frank McManamon (DCR/NPS)	1978	Memo @ DCR	Y	Y	Left in ground			

PARK NAME: SAIR
(Acronym)

Inventoried by ACMP	Estimated # Artifacts	Est. # Lots (Gross Material Types)	Estimated # of ACMP lots	Est. # Lots (Finest Breakdown)	Storage Location	Storage Containers	Artifacts sorted by	Documentation Field Notes	Documentation Maps	Documentation Photos
12) No	18	4	10	18	David Kayser's office	Cardboard box	Not sorted	None	None	None
13)								@ DCR	Yes	None
TOTALS=	18,365	1,452	4,508	5,102						

Appendix 2

Provenience Charts for the Moran Collection, SAIR Accession #13

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E8/S120		Lot 1	SEC 2E1, E8/S120, Lot 1	5100-5151
E1	E8/S120	6/29/76	lot 1, 0-10 herb garden	(as above)	
2E1	E8/S120		L-2	SEC 2E1, E8/S120, L 2	3453-3457
2E1	E8/S120		Lot 2, 10"+	SEC 2E1, E8/S120, Lot 2, 10"+	5152-5169
E1	E8/S120	76	Lot 2 Herb Garden Utility Trench	SEC 2E1, E8/S120, Lot 2, Utility TR	5170-5178
2E1	E8/S120	6/29/76	herb garden, lot 2, 10"	(as above)	
2E1	E16/S42.5-45	7/8/76	F1 Coal and Ash Area, northern portion	SEC 2E1, E16/S42.5-45, Feat 1, Coal&Ash area	5179-5194
2E1	E16/S45-53	6/28/76	Lot 1	SEC 2E1, E16/S45-53, Lot 1	5195-5249
2E1	E16/S45-53	6/30/76	Lot 1, 12"-15" South of F2, northern portion S45-48.5	SEC 2E1, E16/S45-53, Lot 1, 12-15"	5250-5254
2E1	E16/S45-53	6/28/76	Lot 2	SEC 2E1, E16/S45-53, Lot 2	5255
2E1	E16/S45-53	6/28/76	Lot 2, 12"-15", Soil I	SEC 2E1, E16/S45-53, Lot 2, 12-15"	5256-5267
2E1	E16/S45-53		12"-30" Lot 2 Utility Trench	SEC 2E1, E16/S45-53, Feat 1 Lot 2, 12-30"	5268-5282
2E1	E16/S45-53	6/30/76	Lot 2, 12"-30" F1 Utility Trench	(as above)	
2E1	E16/S45-53	6/30/76	Lot 2, F-2, 14"-15", soil discoloration	SEC 2E1, E16/S45-53, Feat 2 Lot 2, 14-15"	5283-5285
2E1	E16/S45-63	7/7/76	Canal ?	SEC 2E1, E16/S45-63	5286-5288
2E1	E16/S45-63				
2E1	E16/S55.5-58	6/30/76	Lot 1, Surface to 9"	SEC 2E1, E16/S55.5-58, Lot 1, 0-9"	5289-5315
2E1	E16/S55.5-58		L-2	SEC 2E1, E16/S55.5-58, Lot 2	3440
2E1	E16/S55.5-58	6/30/76	Lot 2 (9"-14")	SEC 2E1, E16/S55.5-58, Lot 2, 9-14"	5316-5335

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E16/S55.5-63		10"-43"	SEC 2E1, E16/S55.5-63, Lot 2, 10-43"	5336-5339
2E1	E16/S55.5-63	7/6/76	Lot 2 fill area 10"-43" (flake 60")	(as above)	
2E1	E16/S58-63	7/1/76	Lot 1	SEC 2E1, E16/S58-63, Lot 1	5340-5365, 3473
2E1	E21.5/S117.5	6/29/76	Lot 1 (herb garden)	SEC 2E1, E21.5/S117.5, Lot 1	5366-5382
2E1	E21.5/S117.5	6/30/76	Lot 1 (0-10") herb garden	SEC 2E1, E21.5/S117.5, Lot 1, 0-10"	5383-5417, 9419-9422
2E1	E21.5/S117.5		L-2	SEC 2E1, E21.5/S117.5, Lot 2	5418-5451
2E1	E21.5/S117.5	6/30/76	Lot 2, 10"+, herb garden (arbitrary)	(as above)	
2E1	E21.5/S117.5	6/30/76	Lot 2 Feature	SEC 2E1, E21.5/S117.5, Feat Lot 2	5452-5457
2E1	E24/S120	6/28/76	Lot 1	SEC 2E1, E24/S120, Lot 1	5458-5518
2E1	E24/S120	6/24/76	Lot 1 Herb Garden	SEC 2E1, E24/S120, Lot 1, Herb Garden	5519-5558
2E1	E24/S[1]20	6/28/76	Lot 2	SEC 2E1, E24/S120, Lot 2	5559-5582
2E1	E24/S120	6/28/76	Lot 3, Feat. 1	SEC 2E1, E24/S120, Feat 1 Lot 3	5583-5586
2E1	E24/S120		L-3, F-2	SEC 2E1, E24/S120, Feat 2 Lot 3	5587-5593
2E1	E24/S120	6/28/76	Lot 3, Feat. 2 orange clay, dk. humus	(as above)	
2E1	E35/S75	7/1/76	Lot 1	SEC 2E1, E35/S75, Lot 1	5594-5620, 3452
2E1	E38/S72.5-70		Feature 1, 13"-25", Lot 2	SEC 2E1, E38/S70-72.5, Feat 1 Lot 2	5621-5624
2E1	E38/S72 1/2-70	7/6/76	Lot 2 , Feat 1 Depth 13"-25", red iron soil	(as above)	
2E1	E38/S75-70	6/29/76	Lot II, F1, 11"-22" Trench	SEC 2E1, E38/S70-75, Feat 1 Lot 2, 11-22"	5625-5628

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E38/S70-77.5	7/7/76	L-1, Trench, F-2, Loose, pale brown gravel	SEC 2E1, E38/S70-77.5, Feat 2 Lot 1	5629-5633
2E1	E38/S70-77.5	7/7/76	Trench F-2 Lot II, 48", Loose, pale brown gravel	SEC 2E1, E38/S70-77.5, Feat 2 Lot 2, 48"	5634-5636
2E1	E38/S75-72 1/2		Feat. 1, 13" Lot 2	SEC 2E1, E38/S72-75, Feat 1 Lot 2, 13"	5637-5639
2E1	E38/S75-72.5	7/6/76	Feat. 1 Dp. 13" to -, Lot 2, red iron soil	(as above)	
2E1	E38/S75		L-1, trench	SEC 2E1, E38/S75, L 1	5640-5680
2E1	E38/S75	6/29/75	Level 1 Trench 0-10"	(as above)	
2E1	E38/S77.5	7/1/76	Lot 1 (surface to 12")	SEC 2E1, E38/S77.5, Lot 1, 0-12"	5681-5702
2E1	E38/S77.5	7/1/76	Lot 2, 12"-14"	SEC 2E1, E38/S77.5, Lot 2, 12-14"	5703
2E1	E38/S77 1/2		Lot II, 18"	SEC 2E1, E38/S77.5, Lot 2, 18"	5704-5705
2E1	E38/S77.5	7/7/76	Lot II - mottled fill, humus and gravel, depth 18"	(as above)	
2E1	E40/S42.5-52.5		layer 1, topsoil (0-9-12")	SEC 2E1, E40/S42.5-52.5, Layer 1, (0-9-12")	5706-5738, 3447,4845
2E1	E40/S42.5-52.5	6/24/76	Lot 2	SEC 2E1, E40/S42.5-52.5, Lot 2	5739-5752, 3472
2E1	E40/S42.5-52.5		Lot 2, working frag.	(as above)	
2E1	E40/S42.5-52.5		Lot 2, trench	SEC 2E1, E40/S42.5-52.5, Lot 2, TR	5753-5788
2E1	E40/S42.5-52.5	6/28/76	Trench Lot 2	(as above)	
2E1	E40/S42.5-52.5	6/23/76	Trench	SEC 2E1, E40/S42.5-52.5, TR	5789-5835
2E1	E40/S42.5-52.5	6/23/76	T Trench	(as above)	
2E1	E40/S42.5-52.5	6/29/76	F1 trench, extreme south end, hard packed dark fill	SEC 2E1, E40/S42.5-52.5, Feat 1	5836-5841
2E1	E40/S42.5-52.5		F-2, utility trench, gas pipe	SEC 2E1, E40/S42.5-52.5, Feat 2	5842-5847
2E1	E40/S42.5-52.5		Trench F-3	SEC 2E1, E40/S42.5-52.5, Feat 3	5848-5850

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E40/S42.5-52.5	6/29/76	F-3, N-S Trench	SEC 2E1, E40/S42.5-52.5, Feat 3, N-S TR	5851-5855
2E1	E40/S107		C. 15"+, Lot 2	SEC 2E1, E40/S107, Lot 2, 15"	5856
2E1	E40/S147		Lot 1 C. 7"+	SEC 2E1, E40/S147, Lot 1, 7"	5857
2E1	E40.5/S70		Lot 1	SEC 2E1, E40.5/S70, Lot 1	5858-5895
2E1	E40.5/S72.5	7/1/76	Lot 1	SEC 2E1, E40.5/S72.5, Lot 1	5896-5915
2E1	E40.5/S72.5	7/1/76	Lot	(as above)	
2E1	E43/S75	6/30/76		SEC 2E1, E43/S75	5916-5953
2E1	E43/S80	6/28/76	Level 1	SEC 2E1, E43/S80, L 1	5954-5974
2E1	E43/S80	6/28/76	Lev. 2, 10" & below	SEC 2E1, E43/S80, L 2, 10"+	5975-5981
2E1	E43/S82.5	6/26/76	Level 1	SEC 2E1, E43/S82.5, L 1	5982-6001
2E1	E43/S82.5	6/28/76	Level II	SEC 2E1, E43/S82.5, L 2	6002
2E1	E43/S82.5	6/29/76	Level V	SEC 2E1, E43/S82.5, L 5	6003
2E1	E45.5/S117.5	6/23/76	Level 1	SEC 2E1, E45.5/S117.5, L 1	6004-6042
2E1	E45.5/S117.5	6/23/76	Level 2	SEC 2E1, E45.5/S117.5, L 2	6043-6072
2E1	E48/S30	6/23/76	Lot 2	SEC 2E1, E48/S30, Lot 2	6073-6083
2E1	E48/S30	6/23/76	Lot 3 (orange gravel)	SEC 2E1, E48/S30, Lot 3	6084-6087
2E1	E48/S30	6/24/76	Lot 4	SEC 2E1, E48/S30, Lot 4	6088-6095
2E1	E48/S40		L-1	SEC 2E1, E48/S40, L 1	6096-6138
2E1	E48/S40	6/26/76	L-1 (0"-10")	(as above)	
2E1	E48/S40	6/28/76	L-2 (10"-20")	SEC 2E1, E48/S40, L 2	6139-6164
2E1	E48/S40	6/28/76	L-2 (10"-20") act. dep. 18"	SEC 2E1, E48/S40, L 2, 18"	6165
2E1	E48/S40	6/28/76	L-2 (10-20) Act. dp. 20"	SEC 2E1, E48/S40, L 2, 20"	6166-6167
2E1	E48/S40		L-3	SEC 2E1, E48/S40, Feat 1 L 3	6168-6180
2E1	E48/S40	6/28/76	Feature 1 L-3 (20-30")	(as above)	
2E1	E48/S42.5		L-1	SEC 2E1, E48/S42.5, L 1	6181-6228
2E1	E48/S42.5		Layer 1, surface to 10"	(as above)	
2E1	E48/S42.5		Lot 1(Surface to 10")	(as above)	

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E48/S42.5		L-2	SEC 2E1, E48/S42.5, L 2	6229-6250
2E1	E48/S42.5	6/22/76	Layer 2, (10"-20")	(as above)	
2E1	E48/S42.5		L-2 (10"-20")	(as above)	
2E1	E48/S42.5	6/22/76	Feat. 1 Layer 2 Fill (10"-20")	SEC 2E1, E48/S42.5, Feat 1 L 2	6251-6256
2E1	E48/S42.5		L-2, F-1	(as above)	
2E1	E48/S42.5		L-3, Fea. 1	SEC 2E1, E48/S42.5, Feat 1 L 3	6257-6262
2E1	E48/S42.5	6/22/76	Fea. 1, Layer III (20"-30")	(as above)	
2E1	E48.S42.5		Fea 1	SEC 2E1, E48/S42.5, Feat 1	3436
2E1	E48/S45	6/22/76	L-1 (0"-10")	SEC 2E1, E48/S45, Lot 1	6263-6297
2E1	E48/S45	7/7/76	Lot 1 Fl	SEC 2E1, E48/S45, Feat 1 Lot 1	6298-6305
2E1	E48/S45		Lot 2	SEC 2E1, E48/S45, Lot 2	6306-6332
2E1	E48/S45	6/22/76	L-2 (10"-20")	(as above)	
2E1	E48/S45	6/22/76	Fea. 1, L-2 (10"-20")	SEC 2E1, E48/S45, Feat 1 L 2	6333-6356
2E1	E48/S45		Lot 3	SEC 2E1, E48/S45, Feat 1 Lot 3	6357-6361
2E1	E48/S45	6/23/76	L-3 (20"-30") Fea. 1	(as above)	
2E1	E48/S45	6/23/76	Feature 1, L-4 (30"-40")	SEC 2E1, E48/S45, Feat 1 L 4	6362-6375
2E1	E48/S45	6/24/76	L-5 (40"-50") fea 1	SEC 2E1, E48/S45, Feat 1 L 5	6376-6382
2E1	E48/S45	6/7/76	Fea. 1	SEC 2E1, E48/S45, Feat 1	6383-6384
2E1	E48/S45	7/8/76	Fea. 1 floor sample Iron refuse	SEC 2E1, E48/S45, Feat 1, floor sample	6385
2E1	E48/S47.5		Lot 1	SEC 2E1, E48/S47.5, Lot 1	6386-6401
2E1	E48/S47.5	6/30/76	L-1 (0"-10")	(as above)	
2E1	E48/S47.5		Lot 2	SEC 2E1, E48/S47.5, Lot 2	6402-6421
2E1	E48/S47.5	6/30/76	L-2 (10"-20")	(as above)	
2E1	E48/S47.5		L-3	SEC 2E1, E48/S47.5, Feat 1 L 3	6422-6438
2E1	E48/S47.5	6/30/76	L-3 (20"-30") Fea. 1	(as above)	

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E48/S47.5		Lot 4	SEC 2E1, E48/S47.5, Feat 1 L 4	6439-6454
2E1	E48/S47.5	6/30/76	L-4 (30"-40") Fea. 1	(as above)	
2E1	E48/S51		c 12"+	SEC 2E1, E48/S51, 12"	6455
2E1	E48/S62.5-72.5		Level 1	SEC 2E1, E48/S62.5-72.5, L 1	3474
2E1	E48/S62.5-72.5	6/23/76	lot 1 to subsoil, Trench	SEC 2E1, E48/S62.5-72.5, Lot 1 to subsoil TR	6456-6473, 3434
2E1	E48/S62.5-72.5		Lot 1	SEC 2E1, E48/S62.5-72.5, Lot 1	6474-6534
2E1	E48/S62.5-72.5	6/22/76	Trench Lot #1	(as above)	
2E1	E48/S77.5-72.5	7/7/76	Lot 2, Fl, 3 1/2'	SEC 2E1, E48/S72.5-77.5, Feat 1 Lot 2, 42"	6535-6537
2E1	E48/S75		Lot 1	SEC 2E1, E48/S75, L 1	6538-6587
2E1	E48/S75	6/24/76	Layer 1, topsoil, 0"-10"	(as above)	
2E1	E48/S77.5		Lot 1	SEC 2E1, E48/S77.5, Lot 1	6588-6641
I	E48/S77.5	6/23/76	Topsoil 0"-10"	(as above)	
2E1	E48/S77.5	7/7/76	8' below surface, Lot 1	SEC 2E1, E48/S77.5, Lot 1, 8"	6642
2E1	E48/S77.5	7/6/76	Lot 1 Fea. 1 (10"-26") Below Rock and Brick level	SEC 2E1, E48/S77.5, Feat 1 Lot 1	6643-6650
2E1	E48/S77.5	7/6/76	Lot 2, Fl, 26"	SEC 2E1, E48/S77.5, Feat 1 Lot 2, 26"+	6651-6652
2E1	E48/S77.5		Lot 3, Fl, 4' 10"	SEC 2E1, E48/S77.5, Feat 1 Lot 3, 4'10"	6653-6657
2E1	E48/S77.5	7/8/76	Fl, in rock fill below rubble	SEC 2E1, E48/S77.5, Feat 1, Rock Fill	6658-6660
2E1	E48/S80		Lot 1	SEC 2E1, E48/S80, L 1, 0-8"	6661-6707
2E1	E48/S80		Lot 1, topsoil 0-8"	(as above)	
2E1	E48/S80	7/8/76	F.1 Lot #1 - Brick and Stone Rubble	SEC 2E1, E48/S80, Feat 1 Lot 1	6708-6727
2E1	E48/S80	6/24/76	Lot 2 10"-11" - Feature 1	SEC 2E1, E48/S80, Feat 1 Lot 2, 10-11"	6728-6733

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E48/S80	7/9/76	Rubble Fill	SEC 2E1, E48/S80, Rubble Fill	6734-6744
2E1	E48/S82.5		Lot 1	SEC 2E1, E48/S82.5, Lot 1	6745-6793
2E1	E48/S82.5	6/21/76	Lot 1, Surface to 10cm.	(as above)	
2E1	E48/S82.5		Lot 2 Rock fill	SEC 2E1, E48/S82.5, Lot 2	6794-6809
2E1	E48/S85	6/23/76	Lot 1	SEC 2E1, E48/S85, Lot 1	6810-6823
2E1	E48/S85	6/24/76, 7/7/76	Level II	SEC 2E1, E48/S85, L 2	6824-6836
2E1	E48/S87.5	6/22/76	Lot 1 -10" (arbitrary level)	SEC 2E1, E48/S87.5, Lot 1	6837-6869
2E1	E48/S87.5	6/23/76	Lot 2	SEC 2E1, E48/S87.5, Lot 2	6870-6880
2E1	E48/S120		Lot 1	SEC 2E1, E48/S120, L 1	6881-6917, 3433
2E1	E48/S120	6/22/76	Layer 1 (0-10")	SEC 2E1, E48/S120, L 1, contact stratum	6918-6941
2E1	E48/S120	6/21/76	Layer 1, Topsoil, 0-10"	(as above)	
2E1	E48/S120	6/21/76	Layer 1 Topsoil (0-10") Contact Stratum	(as above)	
2E1	E48/S120	6/22/76	Level II	SEC 2E1, E48/S120, L 2	6942-6961
2E1	E48/S120		Lot 2	(as above)	
2E1	E48/S131		Level 1	SEC 2E1, E48/S131, L1	3475
2E1	E50.5/S42.5	7/1/76	Feat. 1 L-3 (20"-30")	SEC 2E1, E50/S42.5, Feat 1 L 3	6962-6968
2E1	E50.5/S42.5		Feat 1 L-4	SEC 2E1, E50.5/S42.5, Feat 1 L 4	6969-6979
2E1	E50.5/S42.5	7/1/76	Fea. 1 L-4 (30"-40")	(as above)	
2E1	E50.5/S42.5	7/1/76	Fea.1, L-5 (40"-50")	Sec 2E1, E50.5/S42.5, Feat 1 L 5	6980-6986
2E1	E50.5/S42.5-45	6/23/76	L1 (0"-10")	SEC 2E1, E50.5/S42.5-45, L 1	6987-7034, 9423
2E1	E50.5/S42.5-45	6/23/76	L-2 (10"-20")	SEC 2E1, E50.5/S42.5-45, L 2	7035-7054
2E1	E50.5/S42.5-S45	6/23/76	L-2 (10"-20") Feat 1.	SEC 2E1, E50.5/S42.5-45, Feat 1 L 2	7055-7080
2E1	E50.5/S42.5-S45		Lot 3 (20"-30")	SEC 2E1, E50.5/S42.5-45, L 3	7081-7084
2E1	E50.5/S42.4-S45	6/23/76	L-3 (20"-30") Feat 1	SEC 2E1, E50.5/S42.5-45, Feat 1 L 3	7085-7097

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E50.5/S45	6/24/76	Fea. 1 (30"-40") L-4	SEC 2E1, E50.5/S45, Feat 1 L 4	7098-7115
2E1	E50.5/S45	6/24/76	Fea. 1 L-5 (40"-50")	SEC 2E1, E50.5/S45, Feat 1 L 5	7116-7134
2E1	E50.5/S85		L-4 Fea. 1	SEC 2E1, E50.5/S85, Feat 1 L 4	3448
2E1	E53-55.5/S40		L1	SEC 2E1, E53-55.5/S40, L 1	7135-7154
2E1	E53-55.5/S40	6/29/76	L-1 (0"-10")	(as above)	
2E1	E53-55.5/S40	6/29/76	L-2 (10"-20")	SEC 2E1, E53-55.5/S40, L 2	7155-7172
2E1	E53-55.5/S40	6/29/76	Fea. 1 L3 (20"-30")	SEC 2E1, E53-55.5/S40, Feat 1 L 3	7173-7174
2E1	E53/S58	6/30/76	L-1 (0"-10")	SEC 2E1, E53/S58, L 1	7175-7189
2E1	E53/S58	6/30/76	L-2 (10"-20")	SEC 2E1, E53/S58, L 2	7190-7191
2E1	E53/S75	6/28/76	L-1, topsoil (0-14")	SEC 2E1, E53/S75, L 1, 0-14"	7192-7232
2E1	E53/S77.5		L-1	SEC 2E1, E53/S77.5, L 1	7233-7251
2E1	E53/S77.5	6/22/76	Level I 0"-10"	(as above)	
2E1	E53/S72.5-77.5	7/13/76	Level II	SEC 2E1, E53/S72.5-77.5, L 2	7252-7257
2E1	E53/S77.5	6/28/76	Level II (10" to below)	SEC 2E1, E53/S77.5, L 2, 10" + below	7258-7259
2E1	E53/S77.5	6/29/76	Level 2 Fea (11" to 12")	SEC 2E1, E53/S77.5, L 2, 11-12"	7260
2E1	E56/S67		22"+ lot 2	SEC 2E1, E56/S67, Lot 2, 22"+	7261
2E1	E58/S79.5-85		L-1	SEC 2E1, E58/S79.5-85, L 1	7262-7291
2E1	E58/S79.5-85	6/29/76	Lev. 1 (0-10")	(as above)	
2E1	E58/S85-80		Lot 1	SEC 2E1, E58/S80-85, Lot 1	7292-7303
2E1	E58/S85 to 80	6/30/76	Lot 1 (0-10") topsoil	(as above)	
2E1	E58/S80-85	7/13/76	Lot II	SEC 2E1, E58/S80-85, Lot 2	7304-7307
2E1	E58/S85 to 80	6/30/76	Trench Lot II gravel	SEC 2E1, E58/S80-85, Lot 2, TR	7308-7309
2E1	E71.5/S95-100	7/13/76	Lot 1	SEC 2E1, E71.5/S95-100, Lot 1	7310-7311
2E1	E71.5/S105		L-1 (0-10")	SEC 2E1, E71.5/S105, L 1	7312-7317, 3438

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E1	E71.5/S105		L-2	SEC 2E1, E71.5/S105, L 2	7318-7334
2E1	E71.5/S105	7/9/76	L-2 (10"-20")	(as above)	
2E1	S85/E83.5	7/14/76	F-1 - Trench	SEC 2E1, E83.5/S85, Feat 1	7335
2E1		7/1/76	fea. 1, 45" below surface Floor section Field Book sketch map	SEC 2E1, Feat 1, 45"*	7336-7337
2E2	W0/S37.5	7/12/76	Lot III 19th Century deposit Depth 22" to -	SEC 2E2, W0/S37.5, Lot 3, 22"	7338-7350
2E2	E0/S44	7/6/76	Lot 1 (0-8")	SEC 2E2, E0/S44, Lot 1, 0-8"	7351-7375
2E2	W0/S44		Lot 1	SEC 2E2, W0/S44, Lot 1	7376-7439
2E2	W0/S44	8/1/76	Lot 1 Shell	(as above)	
2E2	W0/S44	8/1/76	Lot 1 Shell (ceramic)	(as above)	
2E2	W0/S44	8/1/76	Lot 1 Shell (metal glass)	(as above)	
2E2	W0/S44	7/9/76	Lot 2	SEC 2E2, W0/S44, Lot 2	7440-7457
2E2	W0/S44	7/9/76	Lot II, Bone Deposit	SEC 2E2, W0/S44, Lot 2, Bone Deposit	7458-7459
2E2	W0/S44	7/8/76	Lot 2 Shell	SEC 2E2, W0/S44, Lot 2, Shell	7460-7509
2E2	W0/S44	8/1/76	Lot 2 Shell	(as above)	
2E2	W0/S48		Lot 2	(as above)	
2E2	W0/S48 2E/E0	7/6/76	Lot 2 - 8"	SEC 2E2, W0/S48, Lot 2, 8"	7510-7573
2E2	W0/S48 2E/E0	7/6/76	Lot 2 - 8" - Coal Ash	(as above)	
2E2	W0/S48		Lot 3	SEC 2E2, W0/S48, Lot 3, Fill, Begins 18"	7574-7621
2E2	W0/S48	7/7/76	Lot 3, brown ashy fill begins, 18"		
2E2	W0/S66.5	7/14/76	Lot 1	SEC 2E2, W0/S66.5, Lot 1	7622-7642
2E2	W0/S66.5	7/14/76	Lot 2, black soil	SEC 2E2, W0/S66.5, Lot 2, Black soil	7643
2E2	W0/N112.5-115	7/13/76	Lot 1, test near beech tree	SEC 2E2, W0/N12.5-11.5, Lot 1	7644-7647
2E2	W2.5/S37.5	7/9/76	Lot 1	SEC 2E2, W2.5/S37.5, Lot 1	7648-7699
2E2	W2.5/S37.5	7/12/76	Lot 2	SEC 2E2, W2.5/S37.5, Lot 2	7700-7759
2E2	W2.5/S37.5	7/12/76	Lot 2 (ceramics)	(as above)	
2E2	W2.5/S37.5	7/12/76	Lot 2 (Arch Mat) (Bone + Shell)	(as above)	

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E2	W2.5/S37.5	7/12/76	Lot III	SEC 2E2, W2.5/S37.5, Lot 3	7760-7784
2E2	W3/S74-76 1/2	7/13/76	Lot 1	SEC 2E2, W3/S74-76.5, Lot 1	7785-7814
2E2	W3/S74-76.5	7/13/76	L-2	SEC 2E2, W3/S74-76.5, L 2	7815-7848
2E2	W3/S74-76.5	7/13/76	L-3	SEC 2E2, W3/S74-76.5, L 3	7849-7860
2E2	W4.5/S55.5-58	7/13/76	Lot 1	SEC 2E2, W4.5/S55.5-58, Lot 1	7861-7865
2E2	W4.5/S55.5-58	7/14/76	Lot 2	SEC 2E2, W4.5/S55.5-58, Lot 2	7866-7871
2E2	W9/S74-76.5	7/13/76	Lot 1	SEC 2E2, W9/S74-76.5, Lot 1	7872-7909
2E2	W9/S74-76.5	7/13/76	Lot 2	SEC 2E2, W9/S74-76.5, Lot 2	7910-7960
2E2	W9/S76.5-74	7/13/76	Lot 3	SEC 2E2, W9/S74-76.5, Lot 3	7961-7997
2E2	W16/N76.5-74	7/13/76	Lot 1	SEC 2E2, W16/N74-76.5, Lot 1	7998-8026
2E2	W16/N76.5-74	7/13/76	Lot 2	SEC 2E2, W16/N74-76.5, Lot 2	8027-8078
2E2	W16/N76.5-74	7/13/76	Lot 2 10" - soil change	(as above)	
2E2	W16.5/S63.5	7/13/76	L-1	SEC 2E2, W16.5/S63.5, Lot 1	8079-8089
2E2	W16.5/S63.5	7/13/76	Lot 2	SEC 2E2, W16.5/S63.5, Lot 2	8090-8108
2E2	W16.5/S63.5	7/13/76	L-3	SEC 2E2, W16.5/S63.5, Lot 3	8109-8124, 3449
2E2	W16.5/S81-80	7/6/76	Lot #1, builders trench	SEC 2E2, W16.5/S80-81, Lot 1, TR	8125-8130
2E2	W16.5/S81-80			(as above)	
2E2	W16.5/S87-84.5		Lot 1	SEC 2E2, W16.5/S84.5-87, Lot 1	8131-8177
2E2	W16.5/S87-84.5	7/6/76	Lot 1 Adjoining Trench	(as above)	
2E2	W16.5/S95-87	7/6/76	Lot 2 Chive garden next to house	SEC 2E2, W16.5/S87-95, Lot 2	8178-8180, 3442
2E2	W16.5/S95-87	7/8/76	Lot 3 north half	SEC 2E2, W16.5/S87-95, Lot 3, North	8181-8185
2E2	W16.5/S95-87	7/8/76	Lot 3 Trench South half	SEC 2E2, W16.5/S87-95, Lot 3, South	8186-8188
2E2	W16.5/S95-87	7/7/76	Trench Lot 3 Feature SW corner	SEC 2E2, W16.5/S87-95, Feat Lot 3	8189-8191
2E2	W16.5/S95-87	7/7/76	(Trench) Lot 3 black soil (under lean to)	SEC 2E2, W16.5/S87-95, Lot 3	8192-8198, 3424,3426, 3427,3437, 3456,3459, 3460,3465

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E2	W16.5/S87.5-95	7/7/76	Lot 1, extension of trench builders trench	SEC 2E2, W16.5/S87.5-95, Lot 1	8199-8201, 3469
2E2	W16.5/S95		Lot 1	SEC 2E2, W16.5/S95, Lot 1	8202-8238
2E2	W16.5/S95	7/1/76	Lot 1 Trench 0'-10'	(as above)	
2E2	W16[/N]35	6/10/76	R-4,Sec.II	SEC 2E2, W16/N35(?), R-4, Sec 2	8239
2E2	W24.5/S55.5		Lot 1	SEC 2E2, W24.5/S55.5, Lot 1	8240-8269
2E2	W24.5/S55.5	7/14/76	Lot 2	SEC 2E2, W24.5/S55.5-58, Lot 2	8270-8271
2E2	W24.5/S55.5-58	7/14/76	Lot 2	(as above)	
2E2	W33.5/S67.5		L-1	SEC 2E2, W33.5/S67.5, L 1	3439
2E2	W33.5-36/S70-67.5	6/29/76		SEC 2E2, W33.5-36/S67.5-70	8272-8329
2E2	W33.5-36/S70-67.5		Feat. 1, 23"	SEC 2E2, W33.5-36/S67.5-70, Feat 1, 23"	8330-8373
2E2	W33.5-36/S70-67.5	6/29/76	Fea 1 28" and below	SEC 2E2, W33.5-36/S67.5-70, Feat 1, 28"	8374-8381
2E2	W33.5-36/S70	6/30/76		SEC 2E2, W33.5-36/S70	8382-8391
2E2	W33.5-36/S70-72.5	6/28/76	28" (see notes) possible feature in trench	SEC 2E2, W33.5-36/S70-72.5, 28"	8392
2E2	W37.5-33.5/S70-72.5	6/28/76	Trench in gravel path	SEC 2E2, W33.5-37.5/S70-72.5	8393-8465
2E2	W37.5-33.5/S70-72.5		Lot ?	(as above)	
2E2	W36/S70			SEC 2E2, W36/S70	3430,3444, 3446,3462-3464,3466
2E2	W36/S70		Fea 1	SEC 2E2, W36/S70, Feat 1	3429,3431, 3432,3443, 3450,3455, 3461,3470, 3476,4843, 4844

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E2	W36-38.5/S67.5	6/30/76	Level 1 Surface to gravel lens	SEC 2E2, W36-38.5/S67.5, L 1	8466-8512
2E2	W36-38.5/S67.5		Lot 2	SEC 2E2, W36-38.5/S67.5, Lot 2	8513-8546
2E2	W36-38.5/S67.5	6/30/76	Lot 2, gravel lens to	(as above)	
2E2	S67.5/W36-38.5	7/1/76	Lot III/F1/Feature at 26" Flakes below historical material	SEC 2E2, W36-38.5/S67.5, Feat 1 Lot 3	8547-8551
2E2	S67.5-70/W36-38.5		Lot 3	(as above)	
2E2	S67.5-70/W36-38.5	7/6/76	Fea. 1 (0"-6") dark humus lot 1, fea 1 depth 26"	SEC 2E2, W36-38.5/S67.5-70, Feat 1, 0-6"	8552-8553
2E2	S67.5-70/W36-38.5	7/6/76	Fea 1 Depth 26" Lot II dark humus, 6" to 12"	SEC 2E2, W36-38.5/S67.5-70, Feat 1, 6-12"	8554-8555
2E2	S67.5-70/W36-38.5	7/6/76	Feature 1, 26"	(as above)	
2E2	S67.5-70/W36-38.5		Lot 2	SEC 2E2, W36-38.5/S67.5-70, Lot 2	8556-8623
2E2	S67.5-70/W36-38.5	7/1/76	Lot II Historical material below gravel lens	(as above)	
2E2	W36-46/S70-72.5	6/24/76	Trench Level 1 0-30"	SEC 2E2, W36-46/S70-72.5, L 1, 0-30"	8624-8689
2E2	W36-46/S70-72.5	6/28/76	Lot 1 surface to yellow orange sub-soil 32"	SEC 2E2, W36-46/S70-72.5, Lot 1, 0-32"	8690-8718
2E2	W36-46/S70-72.5		Lot 1 (Surf. to 32")	(as above)	
2E2	W38.5/S70		Fea. 1 L-1	SEC 2E2, W38.5/S70, Feat 1 L 1	3445

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E2	W38.5/S70		L-2, Fea 1	SEC 2E2, W38.5/S70, Feat 1 L 2	3435,4846
2E2	W40/S43		L-2	SEC 2E2, W40/S43, L 2	8719
2E2	W40/S45		L-1	SEC 2E2, W40/S45, L 1	3454
2E2	W40/S45-57'10"	6/24/76	F1	SEC 2E2, W40/S45-57'10", Feat 1	8720-8721
2E2	W40/S45-57'10"		Lot 2	SEC 2E2, W40/S45-57'10", Lot 2	8722-8747
2E2	W40/S45-57'10"	6/24/76	Lot 2, Br. yellow/ mottled zone, 14"-		
2E2	W40/S45-58.5		Lot 1	SEC 2E2, W40/S45-58.5, Lot 1, TR	8748-8871 3451,3458, 3468
2E2	W40/S45-58.5	6/23/76	Lot 1 trench	(as above)	
2E2	W40/S45-58.5	6/23/76	Lot 1 Trench (ceramic, glass)	(as above)	
2E2	W40/S45-58.5	6/23/76	Lot 1 Trench (metal, bone)	(as above)	
2E2	W40/S45-58.5		Lot 2	SEC 2E2, W40/S45-58.5, Lot 2	8872-8923
2E2	W40/S45-58.5	6/28/76	Transitional zone Lot 2	(as above)	
2E2	W40/S45-65		Lot 1 trench	SEC 2E2, W40/S45-65, Lot 1, TR	8924-8966
2E2	W40/S58.5-60.5	6/28/76	Sewer cap fill, 12"-16"	SEC 2E2, W40/S58.5-60.5, 12-16"	8967-8977
2E2	W40/S65-58.5		Lot 1	SEC 2E2, W40/S58.5-65, Lot 1	8978-9005
2E2	W40/S65-58.5	6/23/76	Lot 1 Trench sewer caps	(as above)	
2E2	W40/S82-85	Summer 76	Lot 1, surface to 18"	SEC 2E2, W40/S82-85, Lot 1, 0-18"	9006-9070, 3441
2E2	W40/S82-85		Lot 2	(as above)	
2E2	W40/S82-85	6/23/76	Lot 2 Below water pipe -18"	SEC 2E2, W40/S82-85, Lot 2, 18"	9071-9098
2E2	W40/S82-85	6/24/76	Lot III (26"-39" Below surface)	SEC 2E2, W40/S82-85, Lot 3, 26-39"	9099-9108
2E2	Iron Master's House	5/19/75	8" below surface	SEC 2E2, Iron Master's House, 8"	9109-9114

Appendix 2 (cont.)

Milner Categories				ACMP Provenience Code	SAIR Catalog #
Sector	Provenience	Date/Name	E.R.		
2E3	W13/S32.5-35	7/13/76	Lot 1, Surface	SEC 2E3, W13/S32.5-35, Lot 1	9115-9118
2E3	W13/S57-62	7/13/76	Lot 1	SEC 2E3, W13/S57-62, Lot 1	9119-9124
2E4	E10/N57		Lot 1	SEC 2E4, E10/N57, Lot 1	9125
2E4	E10/N57		Lot 2	SEC 2E4, E10/N57, Lot 2	9126
2E4	E12/N6		Lot 1	SEC 2E4, E12/N6, Lot 1	9127-9166, 3428,3467
2E4	E12/N6	7/9/76	Lot 1 Brown Loam	(as above)	
2E4	E12/N6	7/9/76	Lot 2 yellow-gray sand	SEC 2E4, E12/N6, Lot 2	9167-9169
2E4	E12/N52		Lot 1	SEC 2E4, E12/N52, L 1	9170-9186
2E4	E12/N52	7/12/76	L-1 (0"-10")	(as above)	
2E4	E14.5/N6	7/12/76	Lot 1	SEC 2E4, E14.5/N6, Lot 1	9187-9228
2E4	E14.5/N6		Lot 2, yellow sandy soil	SEC 2E4, E14.5/N6, Lot 2	9229-9230, 3425
2E4	E14.5/N85	7/13/76	Lot 1	SEC 2E4, E14.5/N85, Lot 1	9231-9248
2E4	W10/N57	7/13/76	Lot 1 (0"-12")	SEC 2E4, W10/N57, Lot 1, 0-12"	9249-9277
2E4	W10/N57		Lot 2, 12"	SEC 2E4, W10/N57, Lot 2, 12"	9278-9284
2E4	W12/S5	7/9/76	Lot 1	SEC 2E4, W12/S5, Lot 1	9285-9308
2E4	W12/S5	7/12/76	Lot II	SEC 2E4, W12/S5, Lot 2	9309-9362
2E5	E12/S13	7/12/76	Lot II (15"-25") Dark humus	SEC 2E5, E12/S13, Lot 2, 15-25"	9363-9366
2E5	E12/S18	7/9/76	Lot 1 Top soil	SEC 2E5, E12/S18, Lot 1	9367-9406
				Unprovenienced	9407-9418, 3471

Appendix 3

ACMP Artifact Category Definitions

The ACMP artifact categories were for the most part developed during previous ACMPs at other parks in the North Atlantic Region. The ACMP for SAIR retained the general artifact classes which were designed for the Great Island Tavern site collection from Cape Cod National Seashore (Synenki and Charles 1984), with some minor revisions made in 1985 during the ACMP for Minute Man National Historical Park (Towle and MacMahon 1986, 1987). During the ACMP for SAIR, certain changes were made to accommodate the format of the NPS Automated National Catalog System (ANCS), and the classification of bottle glass was also revised. Some of the definitions which follow will be quoted verbatim from previous ACMP reports (Synenki and Charles 1983a:14-30, 1983b:26-36, 1984:28-41; Towle and MacMahon 1987:132-154), although specific citations will not be given. Sheila Charles was originally responsible for most of the artifact definition research.

The categories discussed below will be ordered in two fashions. First, historic vessel ceramics and vessel glass will be defined. Second, the remaining artifact categories will be discussed within general functional groupings. This differs from the order in which the artifact categories appear on the ACMP flow charts (Appendix 4). The flow charts are organized by material type in order to accommodate the classification system required by ANCS. This means that functional groups of artifacts which cannot be associated with a single material class are listed repetitively on multiple pages of the flow charts, (e.g., Bottle Closures, which could be ceramic, glass, metal, cork, etc.). In the definitions which follow, these functional categories will be discussed only once, within the context of a general functional group.

More complete definitions are provided for historic ceramics and other artifact categories which were deemed most useful for site analyses, particularly those categories which provided temporal information. Other categories are largely self-explanatory and are thus given general summary definitions. In the case of general functional categories, specific examples of the artifact types inventoried in those categories may be found in Appendix 5. The "Indeterminate" categories will not be discussed, although they are a part of every material classification (e.g., Indeterminate Metal Object, Indeterminate Ceramic Object, etc.). Further discussion of the inventory form design may be found in the Methodology section of this report.

The SAIR artifact collection contained a total of 15,628 items, and 3741.8 grams of weighed materials. Reference may be made to Appendix 6 for the overall SAIR artifact inventory.

Historic Vessel Ceramics

Historic ceramics are divided into three groups on the basis of paste: earthenware, porcelain, and stoneware. There are major ware type categories within these groups, each of which also has subsidiary categories based upon temper, glaze, and decoration. The ceramics are also classified according to one of five attributes of form: body sherd, rim sherd, basal sherd, handle, or whole vessel. Fragments which contain both base and rim forms are classified as rims, in order to enable minimum number of vessel counts. These attributes of form are used for the "object name" field in the ANCS program, while the ware type is defined in the first two description fields (Appendix 4). The presence of maker's marks is noted in the third description line of the catalog record.

Ceramic sherds and vessels used in the preparation, cooking, serving, and storing of food are recorded in the historic ceramics section of the inventory. Also included are ceramic flowerpots and toiletry items such as chamber pots. Other ceramic items are recorded in functional categories, such as ceramic dolls (Toys), porcelain buttons (Buttons), or bricks and other structural materials (Structural Material). These will be discussed under the functional classification section.

The specific ceramic ware categories were chosen to reflect attributes generally considered useful for analytical purposes, although finer breakdowns by attributes such as decorative motif or color were not included. The attributes used were often derived from and consistent with those detailed by historical archeologists (e.g., Noel Hume 1980; South 1978) and ceramic specialists (e.g., Godden 1975; Lewis 1969; Ramsay 1976; Watkins 1959, 1968).

Historic Vessel Ceramics: Earthenware

Earthenware has a relatively soft, water-absorbent paste in comparison with stoneware and porcelain (Deetz 1977:47). Unrefined earthenwares, including redwares, tin enameled wares, and coarse buff-bodied wares, have a softer and more porous paste than the refined earthenwares which began to be developed in the mid-18th century. The harder pastes of the refined wares were due to the addition of calcinated flint to the clay (Miller 1980:1). They include Whieldon ware, creamware, pearlware, whiteware, and several later ware varieties such as yelloware and Rockingham. Earthenwares were commonly glazed and often decorated, particularly the refined earthenwares. Unrefined earthenwares, when they served a utilitarian rather than tableware function, were not as consistently glazed, especially redwares, which were often "plain," or unglazed.

Redware: A red earthenware paste is the only attribute used to define redware ceramics. Eight categories of redware are inventoried, including 17th through 19th century wares manufactured in both local and foreign production centers. Redwares often compose the largest ceramic assemblage from 17th and 18th century historic sites in New England.

Plain Redware: This ware has an unglazed, coarse, red earthenware paste and was commonly used for utilitarian vessels. Plain redwares are common in ceramic assemblages from historic sites in New England.

Lead Glazed, 1 & 2 Surfaces: Lead glazed redwares exhibit a coarse red earthenware paste and a clear lead glaze on the interior and/or exterior surface. If only one surface is glazed, usually it is the interior of the vessel. The clear lead glaze results in a color similar to but darker than the fired clay body, though variations in glaze composition and firing procedures can result in color variations. The predominant colors after firing are black and brown or red-brown, although orange, yellow, and green are also possible.

Most of these wares were probably produced by local potters. The ACMP inventory does not further separate them by glaze color or other attributes, although it should be noted that recent research has shown such breakdowns to be of some utility in redware analysis (Turnbaugh 1983, 1985). Undecorated lead glazed wares are often the most abundant type of redware from 17th and 18th century historic sites in New England.

Sgraffito: Three attributes define this ware: a red earthenware paste, a white slip that has been scratched or cut away to expose the red paste, and a clear lead glaze. The combination of paste, slip, and glaze produces a rich yellow surface color with light brown body ornamentation.

Sgraffito was produced during the 17th and into the mid-18th century. It was exported primarily from the Devon potteries (Lewis 1969:24), although the decorative process seems to have been invented in Italy during the 15th century (Woodhouse 1974:155). In contrast to most other redware varieties, sgraffito does not appear to have been imitated by Bay Colony potters (Turnbaugh 1985:222).

Trailed Slipware: This ware has three attributes: a coarse red earthenware paste; the presence of a thin, trailed white slip decoration; and a clear lead glaze. Godden suggests that slip-decorating represents "an early standard form of embellishing" on both American and English redware as early as ca. 1670 and as late as 1795 (1975:17). However, the dates for the many local American redwares and their variants, such as trailed slipware, have not been firmly established, and local trailed slipwares may also have been manufactured into the 19th century. Although typically not as abundant as plain lead glazed redwares, trailed slipwares are common components of historic site ceramic assemblages.

Jackfield: This ware was included in the redware category of the inventory as it was originally done in the earlier ACMPs. However, Jackfield bears no relationship to the redware types discussed above. It is identified by two attributes: a thin, highly vitrified, fine-grained reddish-purple or gray earthenware paste; and a lustrous black, often metallic-like, lead glaze.

Jackfield was named after the original product manufactured at the Jackfield Pottery in Shropshire by Maurice Thursfield ca. 1750, but the term "Jackfield" in the ACMP inventory does not refer to the pottery produced by this one potter. Indeed, similar wares were manufactured by Thomas Whieldon and other Staffordshire potters from ca. 1745 to 1790 (Noel Hume 1980:123; Godden 1975:18). Noel Hume suggests that Jackfield-type wares are common on American sites of the 1760s (1980:123).

Astbury: This ware is distinguished by a fine-grained, thin red earthenware paste; a glossy, clear lead glazed surface appearing ginger or light brown in hue; and often a white slip decoration. Sprig-molded designs are common. These wares were produced by John Astbury as well as a variety of other potteries (Noel Hume 1980:122-123),including potters in the Stoke-on-Trent district of England (Lewis 1969:77) and at Newcastle-under-Lyme during the second quarter of the eighteenth century (Noel Hume 1980:123).

Miscellaneous and Unidentified Redwares: There are other ceramics with a redware paste which cannot be classified in the above categories. The most common such ware in collections inventoried by the ACMP is a plain redware which has been coated with a dark slip, usually on one surface, but not glazed. The ACMP identifies these as "Slip-Coated" on the second description line. There are also other redwares classified simply as Unidentified.

Tin Enameled Wares: Tin enameled wares exhibit the following attributes: a soft earthenware paste; and a thick lead glaze containing a tin oxide (Barber 1906). Tin enameling was a widespread pottery manufacturing technique throughout Europe, and the resulting wares were referred to by various names depending upon the country of origin (e.g., delft, faience, maiolica or majolica). Noel Hume has succinctly summarized the history of the manufacturing technique:

> It had been used in Spain and Italy from the fourteenth century onward and was there known as maiolica. The

> same term described the products of Italian craftsmen who moved to Antwerp in the sixteenth century and thence to England. In France similar tin enameled wares were known as faience, but in England the term delftware...became the generic term for the ware, just as it did in Holland (1980:106).

Delft: This ware has a soft buff or light pink-colored paste, often so porous that it can be scratched easily with a fingernail. In cross section, delft sherds are relatively thick and the enamel appears to sit on the surface, rather than being tightly bonded to the paste. This enamel is often pitted and is easily flaked off the body. The overall appearance of a glazed delft surface is opaque, and often dull looking. In coloration, the white glaze typically has a slight blue hue, and is commonly decorated with dark blue handpainted designs in geometric, floral, or chinoiserie patterns, and to a lesser extent with polychrome designs.

In England, the technique of tin enameling began with immigrant potters from the Netherlands who began their production in about 1567 (Noel Hume 1980:105, 203; Lewis 1969:35; Solon 1906). The production of delft, said to be the major English ceramic development of the 17th century (Noel Hume 1980:105), continued in most countries of western Europe well into the 18th century when the production of white salt glazed stonewares and creamwares supplanted the tin enameled earthenware market.

Delft from England rather than Holland most likely predominates in ceramic assemblages from historic sites in New England, due to trade restrictions from the late 17th to mid-18th century (Noel Hume 1980:107).

Rouen/Faience: Faience is the French equivalent of other European tin enameled wares. Rouen was a major center of faience production. It is distinguished from delft by: its salmon-white tin enameled interior. On some vessels the white tin enameling is present on the exterior lip or rim. Noel Hume suggests that, in general, faience was not shipped to the colonies due to British embargoes until after the American Revolution (1960; 1980:141). However, it seems to have reached the colonies prior to this in at least some cases, such as the faience recovered in excavations at Fort Michilimackinac (Miller and Stone 1970).

Miscellaneous and Unidentified Tin Enameled: There are other types of tin enameled wares which sometimes appear on early historic sites in New England (e.g., hispanic, Portuguese, and Italian majolicas. These would be identified as such when possible. The Unidentified category is used primarily for sherds with a tin enameled ware paste, but which have lost the easily-flaked glaze from both surfaces and cannot be further identified.

Coarse Buff-Bodied Earthenware: The distinguishing characteristic of these wares is a coarse, buff-colored, unrefined earthenware paste.

Combed Ware: Three attributes define this ware: a relatively hard, coarse, buff-to-pink earthenware paste; a slip decoration consisting of a white slip with repetitive thin, wavy brown lines on the surface; and a smooth, often glossy yellow surface color due to the application of a lead glaze. Undecorated fragments of combed and/or dotted sherds were also recorded in this category.

The technique of combing involves drawing a thin wire, horn, leather comb, or similar object with brown slip on it over the vessel's surface (Woodhouse 1974:157; Godden 1975:17). South (1978:72) and Noel Hume (1980:135) suggest that combed and dotted wares were produced in England initially at Staffordshire and then at Bristol and Wrotham, ca. 1670-1795.

Dotted Ware: Dotted wares exhibit the same attributes as combed wares except for the slip decoration. Rather than fine combed lines, the decoration consists of circular, often raised brown dots on the vessel's surface.

Mottled Ware: The attributes of mottled ware are: a buff-to-brown earthenware paste; and a mottled brown lead glaze with lustrous streaks due to the addition of manganese. This is an early 18th century Staffordshire ware, and was commonly used in the production of mugs.

Unidentified Coarse Buff-Bodied Wares: Sherds inventoried under this category are those which exhibit coarse buff-colored earthenware pastes, but cannot be identified as any of the wares listed above.

Creamware: This ware type is identified by two primary attributes: a thin, hard, fine-grained cream-to-white earthenware paste; and a clear surface glaze to which copper was added, resulting in pale yellow to yellow-green tint. This tint is most noticeable in the folds and crevices of the vessel where the glaze pools, particularly along the edges of footrings.

The development of creamware was the result of many individuals' work in several districts of England (Solon 1906:199-299). The clay body was refined by the addition of ground flints which allowed the production of thinner, harder vessels. "Clouded" or "Whieldon" wares (see Other Earthenware, below) were among the first wares of this type to be manufactured, ca. 1750. Wedgwood perfected a plain cream-colored ware in Burslem by 1762 (Noel Hume 1980:123-124), although much English creamware is also attributed to producers in Leeds, Liverpool, and Staffordshire (Austin 1978:39; see also Moore 1909; Towner 1965).

In general, most creamware assemblages on American sites postdate 1770 (Miller and Stone 1970:42-44), and production continued in England until ca. 1820 (Towner 1957; Noel Hume 1980; South 1978), although its popularity waned significantly with the introduction of pearlware (Miller 1980:15) (see below). The perfection and subsequent popularity of creamware is viewed as one of the most important ceramic developments of the 18th century (Noel Hume 1980:123), as it shaped the course of all future earthenware production. It also displaced "tin-glazed ware, white salt glazed stoneware, and to some extent even oriental porcelain...from the market" (Miller 1980:1). Creamware, along with the subsequent development of pearlware (see below), allowed the British to capture "the world ceramic tableware trade by the 1790s" (Miller 1980:1).

Plain Creamware: This category is used to record undecorated creamware sherds, which are often the most common form of creamware found on New England historic sites.

Shell-Edged: Shell-edging was a decorative motif which was infrequently used on creamware but which later became quite common on pearlware and whiteware vessels (Noel Hume 1980:126). It consisted of handpainted brushwork along the interior rim of the vessel, which was "drawn inward to create a feathery edge" (Noel Hume 1980:131).

Other Edge Decorated: A variety of edge decorations were used on creamware vessels, typically consisting of unpainted molded designs. These included shaped rims such as the Queen's and Royal patterns, and raised relief designs such as the feather-edge, spear head, and bead and reel designs (Noel Hume 1980:116, 126-127). The names of these patterns are identified whenever possible in the first description line of the catalog record.

Handpainted: This category contains sherds which were decorated with either monochrome or polychrome handpainted designs. Common handpainted decorations included floral and chinoiserie patterns done in an underglaze blue. The handpainted decorations were popular, and continued to be so in the later production of pearlware (Noel Hume 1980:129).

Annular: These wares exhibit underglaze decorations characterized by bands of color or designs. Annular wares were most popular between 1795-1815 (Noel Hume 1980:131), and are most frequently found on pearlware vessels. The decorative motifs include simple annular designs, or bands of color; mocha designs, which are fern-like ornamentations usually bounded with bands of color; and fingerpainted designs with multicolored cloud-like swirling lines. The mocha and fingerpainted designs became popular after 1800 and remained so for approximately the next 20 years (Van Rensselaer 1966; South 1978:72; Noel Hume 1980:131-132).

Transfer-Printed: Transfer printing is an underglaze decorative process which was perfected on mass-produced pottery by Sadler and Green of Liverpool ca. 1756 (Noel Hume 1980:128-129). While transfer prints were used on creamware (commonly in black), they became much more popular on pearlware toward the end of the century and in the early 19th century (Noel Hume 1980:129; Miller 1980:4, 1984b:43-44).

Sponge-Decorated: This decorative technique involved the application of colored glaze to the surface of the vessel with a sponge or sponge-like material. The resulting appearance was a surface with stippled or clouded-like coloration. Typically this technique was used on later refined wares, particularly whitewares. Boger notes that a number of Staffordshire potteries produced sponge-decorated wares for the American market, ca. 1820-1850 (Boger 1971:323).

Miscellaneous and Unidentified Creamware: There are other miscellaneous types of creamware decoration which do not fit into the above categories. These are described when possible, or listed as simply unidentified. Such decoration could include molded designs on parts of the vessel other than the rim, and a combination of two or more of the above techniques (e.g., transfer printing with handpainting). These sherds are lumped as "Unidentified" for the purpose of inventory display in the ACMP reports.

Pearlware: Pearlware exhibits two major attributes: a thin, hard, fine-grained white earthenware paste; and a clear surface glaze to which cobalt was added, resulting in an overall blue tint. Like creamware, this coloration is most noticeable in the folds and crevices of vessels, particularly around footrings where the bluish glaze often pools.

Pearlware has been called "one of the landmarks of English earthenwares" (Noel Hume 1978a:42). It evolved out of creamware (Miller 1980:2), and although it was available in England as early as 1765, it seems to have entered the American ceramic market in the 1780s, after the disruption in trade caused by the American Revolution (Noel Hume 1978a:46).

Pearlware developed as the demand for creamware waned (Miller 1980:2). Its bluish glaze and typically blue surface decorations were an attempt to imitate porcelain. With pearlware came the transition in marketing emphasis from ware type to decoration (Miller 1980:2, 15-16). Many of the decorative techniques were the same as those developed on creamware. Unlike creamware, pearlware was rarely undecorated (Miller 1980:16). This emphasis on decoration continued with the gradual development of whiteware, and the distinction between the two ware types was not as significant a factor for the market as were the decorative motifs. Thus the wares of the early 19th century (ca. 1820+) are less easily distinguished by ware type (Miller 1980:16-18). The decorative categories represented are classified in the same way as those used for creamware.

Plain Pearlware: Although plain pearlware was not a typical market item (Miller 1980:16), it is commonly found on archeological sites, often reflecting decorated vessels which were broken into sherds which may or may not retain a portion of the decoration.

Shell-Edged: The shell-edged rim design has been called the most popular of all pearlware borders (Noel Hume 1978a:44). As with creamware, it consisted of a painted border which was drawn inward with brushstrokes to give a feathery appearance. At times, the vessel rim itself was also molded or embossed with feathery designs, or others such as fish scales or garlands, to accentuate this effect. Early examples were generally well-painted (ca. 1780-1795), but after ca. 1800 it was common to have a "debased" version of the motif, often nothing more than a painted stripe along the rim of the vessel (Noel Hume 1980:131). Shell-edging was done in both blue and green.

Other Edge Decorated: Pearlware sherds with rim decoration other than shell-edging are classified either as "other edge-decorated," or as a more specific descriptive type, most commonly some form of molded rim (e.g., beaded edge). The nomenclature for various molded rims is typically adapted from that defined by Noel Hume (1980:116, 126-127).

Handpainted: Underglaze handpainted designs were common on pearlware vessels and were generally floral, chinoiserie, or geometric patterns. Blue was the most common color, but polychrome designs were also made after ca. 1795, typically in brown, yellow, and green floral or geometric designs (Miller 1984b:43; Noel Hume 1980:129).

Annular: Annular decorations were also popular on pearlware vessels, peaking in popularity between ca. 1795 and 1815 (Noel Hume 1980:131-132). The decorative motifs are described above under creamware.

Transfer-Printed: Underglaze transfer printing became a common mode of decoration by the 1790s, and continued to be very popular until the mid-19th century (Miller 1980:4, 1984b:44). Blue was the most common color used, although other monochrome colors and polychrome designs were also available. Designs included oriental motifs (particularly the blue willow design), floral patterns, European and idealistic scenes, and geometric designs.

Sponge-Decorated: This decorative technique has been described above under Creamware, and was more often applied to white wares.

Miscellaneous and Unidentified Pearlware: There are other, less common decorative techniques which have not been enumerated above. Examples could include molding and multiple decorative techniques, and would be identified on the first description line of the catalog record as either a descriptive type or as Unidentified.

Whiteware: Two major attributes characterize whiteware: a very hard, fine-grained paste, with a vessel body that is usually fairly thin but can also be rather substantial; and a clear, glossy surface glaze. Whiteware emerged from the production of pearlware, and was first made simply by reducing the amount of cobalt in the glaze. The gradual whitening of the glaze reflected the growing popularity of whiter porcelains during the first decades of the 19th century (Miller 1980:17). These wares are thus sometimes difficult to distinguish from late pearlwares, and in fact the producers made no real distinction as they focused instead on the decorative techniques (Miller 1980:17). However, the emergence of whiteware as the predominant ware type by ca. 1820 (Noel Hume 1980:130) serves as a useful, though certainly not absolute, chronological marker. By ca. 1840 there was again a demand for wares with a bluish or "pearl" tint, and the glazes of some whitewares of this period reflect this change (Miller 1980:17-18). Whiteware continues to be manufactured, and although it was first produced in England, it was subsequently produced in the United States as well.

The ACMP whiteware category includes all "white" wares of the period, although several varieties existed (e.g.,ironstone, white granite, semiporcelain). The subcategories identified are based upon the same decorative techniques discussed above for creamware and pearlware. The whiteware assemblage is often the largest ceramic assemblage from 19th century historic sites in New England.

Whieldon Ware: This ware exhibits the following attributes: a cream-colored earthenware paste, essentially a creamware paste; a surface decoration consisting of patches or "clouds" of purple, blue, brown, green, and/or yellow; and a clear glaze.

The production of Whieldon ware, or "clouded" ware, seems to have arisen in the 1740s from the early ventures of Thomas

Astbury and Thomas Whieldon who refined a clay body by the addition of ground flints (Noel Hume 1980:123; Woodhouse 1974:166). After its inception, this ware was produced by many other potters and remained popular through the 1770s (Lewis 1969:78; Woodhouse 1974:167). Whieldon ware was the predecessor of creamware, which as noted above had a significant influence upon the world ceramic market.

Rockingham/Bennington: There are three major attributes which characterize this ware: a highly vitrified, buff-colored earthenware paste; a glossy brown, often mottled exterior glaze; and a clear yellow interior glaze. Rockingham was first manufactured during the late 18th century in Swinton, England, on the property of the Marquis of Rockingham. The name is also used, as is Bennington (after the potteries of Bennington, Vermont), for a very similar 19th century ware which was produced in great quantities in the United States after ca. 1840 in almost every sizeable pottery (Boger 1971:287-288; Ramsay 1976). This American variety was most popular between ca. 1840 and 1900, and is a common component of ceramic assemblages from site of that period.

Yelloware: The two primary attributes of yelloware are: a highly fired, relatively thick, buff-colored earthenware paste; and a transparent glaze which gives the vessel an overall mustard color. Ramsay (1976) and Ketchum (1978) indicate that yelloware is a utilitarian earthenware that was manufactured in the United States from the 1830s to the 1930s, and in England from the 1840s to the 1900s. Food preparation vessels are the most frequently found vessel type in this category (e.g., mixing bowls).

Unidentified Earthenware: This category is used to record earthenwares which were different from the above categories or were otherwise unidentifiable, particularly sherds which have lost their glaze or had been burned. Sometimes sherds which exhibit an Albany-like slip on the interior but have an earthenware paste are included in this category, but may actually be low-fired domestic stoneware.

Historic Vessel Ceramics: Porcelain

Two attributes characterize porcelain: an extremely vitreous, often translucent white paste; and a white glossy surface glaze. Numerous decorative techniques were employed, several of which are enumerated on the ACMP flow charts (Appendix 4), including: underglaze handpainted monochrome and polychrome, overglaze handpainted monochrome and polychrome, gilted, and transfer printed, molded, and sprig-molded. Monochrome designs were typically executed in blue, and polychrome designs most commonly added red. These descriptive types were not further analyzed as to point of origin or time period. Both Oriental and English porcelain was available in the American marketplace during, as well as after, the colonial period.

It is generally held that porcelain tablewares were relatively expensive, high status wares in the 17th and early 18th centuries (Noel Hume 1980:257; Miller 1984a:2). They subsequently became more popular and affordable, and the quality of the wares generally decreased as they were mass-produced for the foreign trade (Noel Hume 1980:257-265; Gordon 1975:162). In the late 18th century, the porcelain market was affected by the strong competition of the newly developed refined earthenwares (e.g., creamware, pearlware) (Miller 1984a:2). Many of the porcelains from historic sites can be later (19th and 20th century) domestic wares, as opposed to imported Oriental or European wares from the 17th or 18th century. The ACMP does not distinguish between these wares.

Historic Vessel Ceramics: Stoneware

Stonewares are fired at high temperatures and have a very hard, vitreous, nonabsorbent paste. The color and surface texture of stoneware vessels is variable, depending largely on clay composition, kiln firing conditions, and the kinds and amounts of glaze applied to the surface (Stewart and Cosentino 1977:21).

Nottingham: This ware is identified by two primary attributes: a thin, dense, hard, gray stoneware paste; and a smooth, lustrous orange-to-brown salt glazed surface. This specific type of English brown stoneware was developed by James Morley of Nottingham, England, by 1684 (Lewis 1969:55; Noel Hume 1980:114), and production continued throughout the 18th century. Common vessel forms include mugs, bowls, and pitchers, which are often decorated with incised lines and inscriptions. Similar wares were also produced at other potteries, but those from Nottingham are identifiable by a thin white slip that appears between the clay body and the glaze (Noel Hume 1980:114).

Bellarmine/Frechen: This category refers to Rhenish stoneware vessels, including Bellarmine bottles, which were produced primarily in the Frechen area around the first quarter of the 18th century. They exhibit: a thick gray stoneware paste; and a light-to-golden brown, mottled salt glazed exterior surface. Typically these vessels are jars or bottles which often have ornamental relief designs, most often a bearded human face (Noel Hume 1980:55-57).

Westerwald/Raeren: These wares have two primary attributes: a gray stoneware paste; and an elaborate stamped, incised, and/or sprig-molded surface decoration colored with a cobalt blue and/or manganese purple glaze. These gray and blue stoneware vessels were produced in the Raeren district beginning ca. 1590 and were joined by similar wares from the Westerwald district later in the 17th century. They continued to be made throughout the 18th century, though their popularity waned in England and America in the 1760s (Noel Hume 1980:279-281). Cobalt blue floral and geometric patterns were most popular.

White Salt Glazed Stoneware: These stonewares exhibit: a thin fine-grained white stoneware paste, and a white salt glazed surface. The development of this ware type ca. 1720 marked perhaps "the most important stoneware development" (Noel Hume 1980:114; see also 1978b:27), for it allowed the production of strong, fine, white tablewares which were much superior to wooden and earthenware tablewares. These wares enjoyed tremendous popularity, which waned toward the end of the 18th century with the introduction of refined earthenwares such as creamware (Mountford 1973:214).

The ACMP inventory divides white salt glazed wares into four categories: plain, molded, scratch blue, and other. Plates in particular were frequently molded with elaborate rim decorations, many of which were carried through later in refined earthenware production. These patterns are identified whenever possible. Scratch blue designs consisted of incised designs which were painted with cobalt blue, and were produced during the second half of the 18th century (South 1978:72; Noel Hume 1980:117-118).

Drybody Stoneware: These stonewares are characterized by their thin, fine-grained paste, and their lack of glaze. Rosso Antico and Black Basalte were two well known drybodied wares, named after Josiah Wedgwood's production although they were also produced at other potteries. The former was made throughout the 18th century and the latter during the second half of the 18th century. These wares were most often used for teawares and were commonly decorated with elaborate relief-molded designs (Noel Hume 1980:120-123).

Domestic Stoneware: Three attributes were used to define this ware: a stoneware paste, a salt glazed exterior vessel surface, and an interior Albany-type slip. Albany-type slip refers to an iron oxide clay wash which was used on a vessel's interior surface to seal the clay body. It was originally developed in Albany, New York, but similar varieties were subsequently mined and used elsewhere in the United States (Greer 1981:194). It varies in color from medium brown to black, but most often appears as a dark metallic brown. This color variability is due to differences in clay sources or techniques of applying the slip before or after firing (Webster 1971:40). These are generally 19th century wares, and both Webster (1971:40) and Watkins (1968:11) indicate that after ca. 1800, Albany-type slip appeared often on American stonewares and nearly always on New England stonewares. These wares are not further broken down by the ACMP, although if a maker's mark or design is present, they are recorded on the forms and identified where possible.

Unidentified Stoneware: These sherds exhibit a stoneware paste, a glazed or unglazed exterior, but lack an Albany-type slip on the interior and cannot otherwise be identified in the above categories. These sherds may be domestic stonewares produced without an Albany-type slip, or unidentified imported stonewares.

Bottle and Drinking Vessel Glass

The ACMP classified bottle glass and drinking vessel glass according to manufacturing technique. These categories were developed from the system used by the Parks Canada Historic Parks and Sites Branch, as defined in their excellent publication entitled The Parks Canada Glass Glossary (Jones and Sullivan 1985; see also Miller and Sullivan 1981). The ACMP used these categories for the first time for the SAIR collection. The classification system used during previous ACMPs was based upon older research information and was not an adequate system for identifying chronological attributes. The new system uses hierarchical categories, as shown on the ACMP flow charts (Appendix 4). The first breakdown is based upon sherd morphology (body, neck, base, base/stem, handle, rim, lid/cover, or whole vessel), which is recorded in the "object name" field on the catalog record along with an identifier as to whether the object is from a bottle, drinking vessel, or indeterminate vessel (of indeterminate function).

The first three description lines on the catalog record are used for recording technological attributes. These categories, as defined by Jones and Sullivan (1985), provide chronological information which is useful for archeological analysis. The first breakdown identifies the object as freeblown, molded, or indeterminate. Molded objects are further described as contact molded, pattern molded, press molded, optic molded, or machine made. Whenever possible, the contact molded items are further classified as to mold type: dip mold; 2-piece mold; 2, 3, or 4-piece mold with separate base; shoulder-height multi-piece mold; Ricketts mold; turn/paste mold; or molded neck with hand-finished lip. If the item exhibits embossing or a maker's mark, these are noted on the fourth and fifth description lines of the catalog record.

Due to the small size of most glass sherds from archeological sites, it is often impossible to identify precise technological attributes, such as the mold types represented by contact molded sherds. Most frequently the bottle glass is identifiable only to the first level of classification, as either freeblown, molded, or indeterminate. The definitions for the manufacturing technique categories follow, as abstracted from The Parks Canada Glass Glossary (Jones and Sullivan 1985), with permission of the authors (Olive Jones, personal communication 1988). Researchers may refer to that publication for more detailed definitions.

Freeblown: Freeblown vessels are made without the assistance of molds, and are often somewhat irregular in shape and exhibit a glossy surface. Glass blowing technology has been used for centuries and is still used today, and thus specific dates of manufacture cannot usually be determined (Jones and Sullivan 1985:22). Generally, most glass vessels were freeblown until about the mid-18th century when molds began to be used with increasing frequency for the production of certain vessel types, particularly bottles. Thus, in order to use freeblown glass for chronological analysis, it is most useful to regard it in the context of the total glass assemblage (e.g., compared to the relative percentages of molded glass vessels).

Molded/Contact Molded: This category includes all glass vessels which were formed, at least partially, in a mold known as a contact mold. The glass can be blown by mouth or by machine into the mold. The technique of molding glass was known during Roman times, and was revitalized by Venetian glassmakers in the 17th century for molding stemware. It does not appear to have been regularly used for glass containers until the 18th century, with the exception of 17th century square case bottles (Jones and Sullivan 1985:22-24). The fact that a vessel was molded cannot therefore be used as a specific chronological marker, although in a general sense, molded bottles did not become common until after the mid-18th century. There are a number of mold types which were commonly used and which can be more chronologically diagnostic. Those identified by the ACMP will be discussed below.

Sherds from contact molded vessels can be best recognized if they have a portion of a mold seam or an embossed surface. Molded vessels are also more regular than freeblown vessels, and the surface of the glass often exhibits a fine stippling caused by contact with the mold. In many cases, it is possible to identify a sherd as molded, but specific mold types cannot be identified. In these cases, the ACMP classifies the sherd as Molded/Contact Molded on the first two description lines of the catalog record.

Dip Mold: The dip mold was a one-piece mold used to form the body of a bottle, with the shoulder and neck freeblown. Such bottles do not exhibit mold seams, though the glass may bulge at the intersection of the mold and the freeblown shoulder. The bottle must have straight vertical sides or be slightly tapered toward the base to have allowed for removal from the mold. The surface of the molded body should be textured, unless the bottle was worked after removal from the mold, and the freeblown shoulders and neck should be smooth and glossy. The body should not be embossed, with the possible exception of ribbing, although there may be embossing on the base. The dates for the use of the dip mold are not precise, ranging from before the 18th century to at least the late 19th century. Dip molds were probably introduced in the production of dark green English wine bottles in the 1730s (Jones and Sullivan 1985:25-26).

Two-Piece Mold: This hinged mold was used to form the base, body, shoulder, and neck of a bottle, while the finish was then hand-tooled. Bottles formed in a two-piece mold should exhibit mold seams on opposite sides of the bottle, beginning just below the finish and continuing across the base. Embossing on the body may be present. This mold type was often used for flat-sided bottles, in which case the mold seams can be concealed on opposite corners. Evidence indicates that the two-piece mold was used for container production from ca. 1750 to ca. 1880, at which point it was gradually replaced by the two-piece mold with separate base part. The dating of this technique for the manufacture of drinking vessels is somewhat more complex. It was used to make the stem portion of stemware as early as the late 16th century, and was later adapted for the production of some tumblers (Jones and Sullivan 1985:26-28).

Two, Three, or Four-Piece Mold with Separate Base: These multi-piece molds consist of hinged vertical mold sections with a separate post or cup base mold. Usually the finish is shaped by hand, although it may also be formed in the mold. The most common of these molds is the two-piece, which became the most widely used mold type for containers in the late 19th and early 20th centuries. The three and four-piece molds were less commonly used, and usually for decorative containers. The mold seams on these bottles extend from the finish to the edge of the base. The base mold also leaves seams around its periphery as well as on the base itself according to the mold type (cup or post mold). The common two-piece mold with separate base part can be dated to roughly post-1850, and it was generally replaced by machine manufacturing which began in the 1920s (Jones and Sullivan 1985:28-29). Such multi-piece molds were used earlier in the production of highly decorated tableware, which can be dated to the first half of the 19th century.

Shoulder-Height Multi-Piece Mold: This type of mold is similar to a dip mold in that the shoulder, neck, and finish of the bottle were freeblown. The multi-piece mold allowed for a variety of body shapes. These bottles are not common, and no further dating information is available (Jones and Sullivan 1985:29).

Ricketts (Ricketts-type) Mold: This was a three-piece mold consisting of a dip mold for the body of the bottle and two hinged segments for the shoulder or shoulder/neck. The finish is hand-done, often by using a finishing tool. These bottles have a horizontal mold seam around the bottle at the interface of the body and shoulder, and two vertical mold seams on the shoulder and possibly part of the neck. The body may be slightly tapered toward the base, and embossing may appear on the base or the shoulder. The Ricketts mold was patented in 1821 and for roughly 20 years was used primarily in the production of dark green liquor bottles. Similar versions of the mold were in use by the mid-19th century for the manufacture of round pharmaceutical or toiletry bottles. By the late 19th century this mold type was rarely used for liquor bottles, although it continued to be used for pharmaceutical and toiletry bottles (Jones and Sullivan 1985:29-30).

Turn- or Paste-Mold (Turn/Paste Mold): These molds have a paste on the interior which is wetted before the glass is blown into the mold. This creates a cushion of steam between the glass and the mold which allows the bottle to be turned, eliminating mold seams. These bottles are vertically symmetrical, with no mold seams or embossing except possibly near or on the base. The surface of the glass is highly polished, and sometimes exhibits horizontal lines created during the turning process. The original use of this technique has not been dated, but was most commonly in use for commercial containers, particularly wine and liquor bottles, from about the 1870s to 1920s (Jones and Sullivan 1985:30-31). This was also a popular technique for the manufacture of tumblers during the 19th and 20th centuries.

Molded Neck with Hand-Finished Lip: This category is used by the ACMP when the specific mold type cannot be determined, but the lip is hand-finished, indicating that the bottle was not machine-made. In this case, the definite lack of diagnostic attributes for machine-made bottles was considered to be important for chronological analysis.

Machine-Made Manufacture: These vessels were created entirely within contact molds, using air supplied by a machine. The molding process generally begins with a ring mold for the formation of the finish, followed by a parison mold for the initial formation of the vessel body, and a full-sized mold for the final shaping of the vessel and the possible addition of embossing. This combination of molds imparts a variety of mold seams which are diagnostic of the machine-made process, although all are not necessarily present. These include: horizontal seams on the finish and at the base of the finish; vertical seams up the body and over the finish; possible "ghost seams" left by the parison mold, which wander up the side of the bottle in proximity to the final vertical seams and are unique to machine-made manufacture; basal cup or post seams similar to other multi-piece molds; and basal "Owens scars," which are "feathery" roundish scars caused by shearing the glass, and are also unique to the machine-made process, dating to post-1904 (Jones and Sullivan 1985:35-37).

The production of machine-made containers began in the 1880s, but was not widespread until the 20th century. The introduction of Owens' fully automatic machine (ca. 1903), combined with subsequent technological innovations and promotion of the new technology, led to the widespread use of the machine-made process. By the 1920s, other forms of bottle production were quickly becoming obsolete (Jones and Sullivan 1985:38-39).

Pattern Molded: This technique has been used for the production of decorative glassware from Roman times to the present. The glass is blown into a part-sized mold with a simple repetitive design, and is then removed from the mold and freeblown to its final form. The vessel thus exhibits attributes of both molded and freeblown vessels. The molded designs are often diffuse in the thinner portions of the vessels, and the interior glass surface has the same contour as the exterior. The surface may be glossy as in freeblown vessels, and the form may be rather irregular (Jones and Sullivan 1985:31-32).

Press Molded: Vessels made by press molding are formed in a mold of any number of parts, with the glass pushed into the mold by a plunger which creates the interior surface of the vessel. The vessel can then be removed from the mold and finished in various ways (e.g., addition of a neck and lip), although often the finished product is taken directly from the mold. The interior surface is typically smooth from the plunger and does not need to be related to the exterior surface shape or design. The exterior surface can be highly decorated, and should exhibit signs of molding, such as mold seams and possibly a stippled surface, although fire polishing can eliminate some of these characteristics. It can be distinguished from cut glass by the more rounded edges of the designs and the other characteristics of molded glass. This technique was not usually used for making commercial containers, and was most often employed in the production of tableware and display vessels such as ink or cosmetic bottles. Although the technique was developed as early as the late-17th century, it was not used to produce hollowware vessels until the 19th century. This change occurred in the United States in the 1820s, and by the 1830s such vessels were mass produced in at least New England and Pennsylvania. Press molded vessels are common on mid-19th to 20th century sites (Jones and Sullivan 1985:33-35).

Optic Molded: This technique is used primarily for the production of tableware. It is a combination of pattern and contact molding, and involves two molds. The glass is first blown into a pattern mold, then extracted and blown into a contact mold. The result is a vessel which retains the original pattern on the interior, and the final mold pattern, which is often simply smooth, on the exterior. The exterior will also exhibit the common characteristics of molding, such as mold seams and a textured surface. Optic molding dates back to at least the 18th century and is still used today.

Functional Artifact Categories

The ANCS requires that archeological materials be cataloged according to material, as indicated on the ACMP flow charts (Appendix 4). However, many of the categories used for the "object name" and description fields are functional rather than material-based, and are more easily discussed by functional headings than by material groupings. The following discussion is therefore organized by functional groups, some of which are actually ACMP classification categories, while others are simply general topical groups which enable an overall discussion of a variety of categories.

Tobacco Pipes: Historic ball clay tobacco pipe bowls and stems are recorded as tobacco pipes in the "object name" field of the catalog record, and as either stems or bowls in the first description line. Stems are classified by bore diameter, which is measured using the shank end of drill bits ranging from 4/64 to 9/64 of an inch in diameter. These measurements are taken to facilitate chronological analysis using the Harrington-Binford technique (Harrington 1978; Binford 1978). When the diameter of pipe stems cannot be determined, they are recorded as indeterminate. Pipe bowls and bowls with stems attached are recorded in the bowl category. The presence of molded decorations and maker's marks is noted in the second and third description lines of the catalog record.

Bottle Closures: Bottle closures (or stoppers) are classified by material type, and are generally not further identified. Notations such as "crown cap" may be added in the first description line.

Apparel-Related Objects: ACMP categories which may be grouped under this general heading include clothing, footwear, buttons, buckles, and other apparel fasteners. These categories are largely self-explanatory. The buttons are classified as to manufacturing technique, including: stamped; 1- or 2-piece cast; 2, 3, or 4-piece stamped; and molded. All of the apparel-related categories are cataloged by material type (e.g., metal, ceramic, glass, leather, fiber, etc.).

Household and Personal Objects: A variety of ACMP categories can be discussed under this general heading. Some of these categories are for objects which have pragmatic or decorative household functions, and others are for personal possessions associated with grooming, writing, procurement of goods, ornamentation, and play. These categories are largely self-explanatory: tableware, kitchenware, furniture and hardware, lighting fixtures, decorative objects, toiletries, stationery, coins/tokens/medals, personal objects, and toys. Each of these categories is used in the "object name" field of the catalog record, with more specific information provided in the description fields. These objects are cataloged by material type.

Many miscellaneous items are recorded in these functional categories, and confusion may arise as to which category an item would be included under. For example, how would a pair of scissors be classified? Appendix 5 provides a listing of how various household and personal objects have been classified. The following listing may also help to clarify some of the categories:

1) Tableware includes objects used in the serving and consumption of food (e.g., cutlery).

2) Kitchenware refers to objects used in the preparation, cooking, and storage of food (e.g., pots and pans, colanders, tin cans, stove parts).

Architectural-Related Materials: Several ACMP categories may be best described as architectural-related, as they include construction hardware and building materials. The specific categories, which appear in the object name field of the catalog record, include: window glass, nails, screws, staples, bolts, wood fasteners, and structural material. Each group is subdivided into additional categories, which are largely self-explanatory, though several merit further discussion.

Window Glass: The window glass category is divided into two manufacturing techniques: crown/cylinder, and plate. An indeterminate category was also added for less identifiable fragments. Crown/cylinder glass is identified by bubble patterns and other markings in the glass which indicated that either a cylinder of glass had been blown and then cut and laid flat, or that a crown of glass had been blown and laid flat leaving a circular pattern of bubbles and a "bull's-eye" in the center where the pontil was removed. This category is useful for identifying glass assemblages that predated plate glass.

Nails: Nails are also classified by manufacturing technique, in order to be used for dating purposes. The information used to identify the various nail types was derived from Nelson 1968 and from discussion with the Chief of the NPS North Atlantic Historic Preservation Center (Synenki and Charles 1983b:34).

Hand wrought nails, the first in the chronological sequence, are characterized by: a nail shank which tapers on all four sides to a point, a faceted head, and a grain in the iron which runs the length of the shank. Hand wrought nails are also often bent or twisted.

Machine cut nails were stamped out of rolled iron bars. Their production began ca. 1790, and after several decades they had virtually replaced hand wrought nails on the market (Nelson 1968:3). The early machine cut nails were characterized by: a shaft which was more rectangular than hand wrought nails, burrs on diagonal sides of the nail resulting from the method of cutting the iron bar, iron grain which ran across the shank, a somewhat rounded point, and at times, heads which were hand wrought and applied. After several decades, ca. 1840, the technology was modified, and these late cut nails can sometimes be distinguished from the early cut nails. The late cut variety were characterized by the same rectangular shaft shape, but also exhibited burrs on the common side of the rolled edge, grain which ran the length of the nail, a sheared point, and no hand wrought head.

The manufacture of wire nails from round steel wire began ca. 1850, but it was several decades before they became commonly used. By the late 1880s, wire nails were quickly superceding cut nails on the market (Nelson 1968:7).

It is often difficult to identify some of the above characteristics when examining archeologically recovered nails. In particular, separating early and late cut nails is often impossible to do, and the indeterminate cut nail category is often used. Prior to the addition of this category in 1985, nails which were identified by the ACMP as cut but not as early or late were placed in the late cut category to avoid biasing the dating of an assemblage as earlier than it might actually be. Therefore, the late cut category contains a large number of cut nails which were actually indeterminate cut nails. After this date, the indeterminate machine cut category was used.

Screws: Screws are also sorted by hand wrought or machine cut technology, or cataloged as Indeterminate.

Staples, Bolts, and Wood Fasteners: These categories include items used as fasteners in building construction, other than nails or screws.

Structural Material: Structural Materials include categories such as brick, mortar, stone, and other materials used in buildings or associated structural components (e.g., stoneware sewer pipes). Structural Material appears in the "object name" field on the ANCS catalog record, and in the case of brick and mortar/plaster, the material field accommodates the only additional description (brick or mortar/plaster). Both brick and mortar/plaster were weighed rather than counted.

Tools and Hardware: This is not an actual classification category, but rather a grouping of several functional categories. These are largely self-explanatory, and include Window Hardware, Door Hardware, Electrical Hardware, Plumbing Hardware, Lighting/Heating Hardware, Hand Tools, Machine Parts, Domestic Animal Gear (e.g., horse shoes, harnessing equipment), Transportation Objects (e.g., portions of cars, bicycles, carriages), and Weaponry/Accoutrements (e.g., gun parts, bullet shells). There is also a Miscellaneous Hardware category to accommodate hardware items which could not be specifically identified as to function. These categories are used in the "object name" field of the catalog record. These items are also cataloged by material type, which is not included on the inventory in this report (Appendix 6), and are further described under the description fields. Appendix 5 may be consulted for further information concerning what kinds of items were inventoried in the different categories.

Fuel and Fire-Related Byproducts: Categories which may be discussed under this general heading include coal, charcoal, ash, cinders/clinkers, slag, and bog iron, all of which are recorded in the "object name" field of the catalog record. These materials are weighed rather than counted. Most of these materials are classified under the ANCS classification field entitled "Other Mineral," although ash and charcoal are recorded under "Wood."

Miscellaneous Mineral Objects: A number of additional mineral objects appear on the catalog flow charts in the "object name" field. These include mica (under "Other Mineral"), and macadam (under "Synthetic"). Another miscellaneous category consists of the small, unidentifiable iron fragments which are often corrosion residue from other iron objects in the collection. Such material is cataloged as "Residue" on the catalog record, and is weighed. It is cataloged with an iron object if it can be directly associated with that object, and is simply noted on a separate description line. If it can only be associated with a larger group of iron objects and not with a specific object or catalog lot, it is cataloged as a separate lot. Typically these iron fragments are less than one half inch in size. Larger fragments are cataloged as Indeterminate Metal Objects.

Floral and Faunal Remains: A number of categories can be discussed under this general heading, including seeds, nutshells, shell, and bone. These do not refer to artifacts which have been culturally modified, but rather to unworked specimen which may reflect food remains. Seeds and nutshells are self-explanatory and will not be further discussed other than to note that the type of seed or nut is listed whenever possible in the first description field of the catalog record.

Bone: Bone is recorded as "Specimen (Unworked)" in the "object name" field of the catalog record, and as a more specific category of bone in the first description field. These categories commonly include fish, mammal, bird, or indeterminate, although other categories were possible if necessary. The second description field is used to record whether the bone is diagnostic, undiagnostic, or a tooth. Diagnostic bone is defined as that which exhibits articular surfaces (e.g., distal or proximal ends), or intentional sculpturing (Olsen 1971:18). Diagnostic bone aids researchers in determining information such as species, age, sex, size, diet, or possible pathologies. It may also yield data about butchering techniques. Certain research questions require bone weights rather than counts (Chaplin 1971:67). However, the ACMP uses counts to help specialists estimate the time and effort required for a more complete analysis. Human bone and teeth are treated differently as they are classified as osteological remains, with bone and tooth appearing in the object name field.

Shell: Shell is also classified as "Specimen (Unworked)" in the "object name" field, and is weighed rather than counted. It is further classified as bivalve, univalve, coral, or indeterminate shell on the first description line, and as any of 15 species or as indeterminate on the second description line. The species are listed on the last page of the catalog flow charts (Appendix 4). These descriptions are a part of the data base and are printed on the catalog cards, but are not included in the inventory in this report (Appendix 6). The specific identifying characteristics of each species are summarized in a previous ACMP report (Synenki and Charles 1984:39-40).

Samples: Several ACMP categories can be regarded as samples. These include soil samples, which are classified as "Clay/Mud/Soil" with soil sample as the "object name." Wood samples, which have been saved specifically as a sample, are also in this category and differ from wood classified as "Specimen (Unworked)," which has not been culturally modified. Other samples might be flotation or pollen samples (classified under "Other Plant Materials"), or Carbon-14 samples (classified under "Wood"). These categories are treated differently as to quantity (count or weight), as indicated on the flow charts (Appendix 4).

Historic Lithics: There are a number of categories for stone artifacts manufactured during the historic period, as well as a category for unidentified "Worked Stone" and a category for "Unworked Stone." The latter category was created for artifacts which were collected during excavation, but which show no signs of cultural modification. They may have been collected mistakenly or as samples of a historic feature and not recorded as such. These will not be further discussed.

Gunflints: Historic gunflints are cataloged as gunflints in the "object name" field of the catalog record. Rounded heel and rectangular heel flints are distinguished on the first description line, although only a total appears on the inventory in this report (Appendix 6). Also identified in this category are possible gunflint manufacture flakes, which are recorded on the first description line.

Groundstone: This category was created for historic pestles, mortars, or other identifiable groundstone artifacts. Groundstone is used in the "object name" field on the catalog record, and the first description field is used to further identify the artifact.

Prehistoric Lithics: Prehistoric lithics were divided into three major categories in the object name field of the catalog record: fire-cracked rock, groundstone, and chipped stone. The fire-cracked rock category will not be further discussed.

Groundstone: As with historic groundstone, this category was designed for implements such as pestles and mortars, although a larger variety of prehistoric implements made of groundstone might be expected (e.g., plummets, axe heads, etc.).

Chipped Stone: The chipped stone classification system was adapted from that developed by the Massachusetts Historical Commission (MHC 1984). The first level of breakdown within chipped stone is recorded in the first description field as either projectile point, biface, or uniface.

Projectile points are further classified as either indeterminate or as a specific type identified by the MHC (1984:56-133). When classified as indeterminate, a point is sometimes described as a "possible" MHC specific type on the third description line. The third description line is also used to identify basal fragments (Appendix 4).

Bifaces are classified on the second description line as either bifacial implement blades or edge tools. These types were defined by the MHC (1984:140-145). The primary distinction between the two is the size of the object, in both length and thickness. These categories are summarized as follows:

1) Bifacial Implement Blade: These artifacts are bifacially modified around the entire periphery. They must also have a length equal to or greater than 4 centimeters, and a thickness of less than or equal to 1.5 centimeters.

2) Edge Tool: There are three possibilities within this category. The object may be (a) bifacially modified along at least one edge; (b) bifacially modified around the entire periphery and of any length but more than 1.5 centimeters thick; or (c) bifacially modified around the entire periphery and of any thickness but less than 4 centimeters long.

Bifaces can also be further described on the third description line as to shape (MHC 1984:140-145), or whether they are basal fragments, tip fragments, midsection fragments, or reworked points.

Unifaces can be further classified as edge tools on the second description line. This is defined as one or more modified unifacial edges (MHC 1984:140).

There are four additional categories for prehistoric lithics, reflecting different stages in the reduction process: core, shatter/block, decortication flakes, and flakes. Flakes are not broken down further into various levels of reduction. These are cataloged as a single lot for each provenience, with "Core" listed on the first description line, "Shatter/Block" on the second, "Decortication Flake" on the third, and "Flake" on the fourth.

Prehistoric Ceramics: Prehistoric ceramics are identified as to sherd morphology in the "object name" field of the catalog record, and temper and decoration in the first two description lines. The decoration descriptions are consistent with those used by the MHC (MHC 1984:185).

Appendix 4

ACMP Catalog Flow Charts

ACMP Catalog Flow Chart

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
MINERAL (0001)
CERAMIC (02)

OBJECT NAME

- BODY SHERD(S)
- RIM SHERD(S)
- BASAL SHERD(S)
- HANDLE(S)
- LID/COVER(S)
- WHOLE VESSEL (75%+)
- WHOLE VESSEL, RECONSTRUCTED
- PARTIAL VESSEL (25-75%)
- PARTIAL VESSEL, RECONSTRUCTED

DESCR1	DESCR2	MATERIAL
REDWARE	PLAIN, LEAD GLAZED 1 SURFACE, LEAD GLAZED 2 SURFACES, SGRAFFITO, TRAILED SLIPWARE, JACKFIELD, ASTBURY, OTHER (specify), UNIDENTIFIED	EARTHENWARE
TIN ENAMEL	DELFT, ROUEN/FAIENCE, OTHER (specify), UNIDENTIFIED	
COARSE BUFF-BODY	COMBED WARE, DOTTED WARE, N. DEVON GRAVEL TEMPERED, MOTTLED, OTHER (specify), UNIDENTIFIED	
CREAMWARE	PLAIN, SHELL-EDGED, OTHER EDGE-DECORATED, HANDPAINTED, ANNULAR, TRANSFER-PRINTED, SPONGE/SPATTER-DECORATED, MOLDED, OTHER (specify), UNIDENTIFIED	
PEARLWARE	(as above for creamware)	
WHITEWARE	(as above for creamware)	
WHIELDON WARE		
LUSTERWARE		
AGATEWARE		
ROCKINGHAM/BENNINGTON		
YELLOWARE		
UNIDENTIFIED EARTHENWARE		
PORCELAIN	UNDECORATED, UNDERGLAZE HANDPAINTED MONOCHROME (or POLYCHROME), OVERGLAZE HANDPAINTED MONOCHROME (or POLYCHROME), GILTED, TRANSFER-PRINTED, SPRIG-MOLDED, OTHER (specify), UNIDENTIFIED	PORCELAIN
WHITE SALT GLAZED STONEWARE	PLAIN, MOLDED (specify on DESCR3), SCRATCH BLUE, OTHER	STONEWARE
DRYBODY STONEWARE	BLACK BASALTE, ROSSO ANTICO, OTHER, UNIDENTIFIED	
NOTTINGHAM		
BELLARMINE/FRECHEN		
WESTERWALD/RAEREN		
DOMESTIC STONEWARE	BLUE COBALT DECORATION	
UNIDENTIFIED STONEWARE		

DESCR3	DESCR4
(space to elaborate, e.g., FLOWER POT)	MAKER'S MARK = x (x = count) (not a separate lot)

ACMP Catalog Flow Chart

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
MINERAL (0001)
CERAMIC (02)

OBJECT NAME	DESCR1	DESCR2	DESCR3	MATERIAL
TOBACCO PIPE(S)	BOWL(S)	WITH STEM ATTACHED, XX BORE DIAMETER - x		KAOLIN (WHITE), RED CLAY, PORCELAIN, OTHER (specify)
	STEM(S), 4-9/64 BORE DIAMETER , INDETERMINATE BORE DIAMETER	MOLDED DECORATION = x	MAKER'S MARK = x	
BOTTLE CLOSURE(S)				specify ceramic type ↓
BUTTON(S)	1 (or 2)-PIECE CAST; 2, 3 or 4-PIECE STAMPED; STAMPED; MOLDED; OTHER (specify); UNIDENTIFIED			
BUCKLE(S)				
OTHER FASTENER(S) (specify)				
specific Household/ Personal objects (*see p.13)				
STRUCTURAL MATERIAL	specify object (SEWER TILE, e.g.) (leave blank for brick)			EARTHENWARE, STONEWARE BRICK [weight, grams]
INDETERMINATE CERAMIC OBJECT				

ACMP CATALOG FLOW CHART

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
MINERAL (0001)
GLASS (05)

OBJECT NAME

BODY SHERD(S),
NECK SHERD(S),
BASAL SHERD(S),
BASAL/STEM SHERD(S),
STEM SHERD(S)
HANDLE(S),
RIM SHERD(S),
LID/COVER(S),
WHOLE VESSEL(S) (75%+),
WHOLE VESSEL,
  RECONSTRUCTED,
PARTIAL VESSEL (25-75%),
PARTIAL VESSEL,
  RECONSTRUCTED,

- BOTTLE
- DRINKING VESSEL
- INDETERMINATE VESSEL

DESCR1

FREEBLOWN
MOLDED
INDETERMINATE

DESCR2

CONTACT MOLDED
PATTERN MOLDED
PRESS MOLDED
OPTIC MOLDED
MACHINE MADE MANUFACTURE

DESCR3

DIP MOLD
2-PIECE MOLD
2, 3, OR 4-PIECE MOLD WITH
  SEPARATE BASE
SHOULDER-HEIGHT MULTI-PIECE MOLD
RICKETTS MOLD
TURN/PASTE MOLD
MOLDED NECK WITH HAND-FINISHED LIP
APPLIED COLOR LABEL

WINDOW GLASS SHERD(S)

CROWN/CYLINDER
PLATE
INDETERMINATE

DESCR4

EMBOSSED BODY = x (x = count)
(not a separate lot)

BOTTLE CLOSURE(S)

DESCR5

MAKER'S MARK = x (x = count)
(not a separate lot)

BUTTON(S)

1 (or 2)-PIECE CAST;
  2, 3 or 4-PIECE STAMPED;
  MOLDED; OTHER (specify);
  UNIDENTIFIED

BUCKLE(S)

OTHER FASTENER(S)

specific Household/Personal
  Objects (*see p.13)
  (e.g., LIGHTING FIXTURES

(specify object)

LAMP CHIMNEY GLASS)

INDETERMINATE GLASS

MATERIAL

GLASS
MILKGLASS

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
MINERAL (0001)
METAL (04)

OBJECT NAME	DESCR1	DESCR3
BOTTLE CLOSURE(S)		MAKER'S MARK = x (x=count)
BUTTON(S)	(see ceramics sheet)	
BUCKLE(S)		
specific Household/ Personal Objects (*see p.13)	(specify object)	
NAIL(S)	HAND WROUGHT MACHINE CUT INDETERMINATE MACHINE CUT (1795-1850) MACHINE CUT (1840-1885) WIRE INDETERMINATE	
SCREW(S)	HAND WROUGHT MACHINE CUT INDETERMINATE	
STAPLE(S)		
BOLT(S)		
WOOD FASTENER(S)		
STRUCTURAL MATERIAL		

		DESCR3
WINDOW HARDWARE	(specify object)	RESIDUE FROM (specify object name) = x GM (x = wt. in grams), (put in same lot as object)
DOOR HARDWARE		
ELECTRICAL HARDWARE		
PLUMBING HARDWARE		
LIGHTING/HEATING HARDWARE		
HAND TOOL(S)		
MACHINE PART(S)		
DOMESTIC ANIMAL GEAR		
TRANSPORTATION OBJECT(S)		
WEAPONRY/ACCOUTREMENTS		
MISCELLANEOUS HARDWARE [do all as one lot]	(e.g.: SPIKES-2, BRASS RING-1)	
INDETERMINATE METAL OBJECT(S)		

MATERIAL

specific metals: FERROUS, COPPER, BRASS, LEAD, TIN, PEWTER, SILVER, INDETERMINATE, etc.

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
MINERAL (0001)
STONE (01)

OBJECT NAME	DESCR1	MATERIAL
STRUCTURAL MATERIAL	ROOFING TILE (e.g.)	SLATE (e.g.)
specific Tools/Hardware Objects (***see p.13)		
GUNFLINT(S)	ROUNDED HEEL RECTANGULAR HEEL POSSIBLE GUNFLINT MANUFACTURE FLAKE (specify other)	(specify)
GROUNDSTONE	PESTLE MORTAR	
WORKED STONE		
UNWORKED STONE		

MINERAL
SYNTHETIC (06)

OBJECT NAME	DESCR1	MATERIAL
BOTTLE CLOSURE(S)		PLASTIC, RUBBER, ASPHALT, NYLON, (specify other)
CLOTHING	(specify object?)	
FOOTWEAR	(" ")	
BUTTON(S)	(see ceramics sheet)	
specific Household/ Personal Objects (*see p.13)	(specify object)	
STRUCTURAL MATERIAL		
specific Tools/Hardware Objects (***see p.13)		
MACADAM		SYNTHETIC
LINOLEUM FRAGMENTS		LINOLEUM
INDETERMINATE SYNTHETIC OBJECT(S)		(specify or INDETERMINATE)

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
MINERAL (0001)
OTHER MINERAL (07)

OBJECT NAME	DESCR1	MATERIAL
STRUCTURAL MATERIAL [use weight in grams]		MORTAR/PLASTER, CONCRETE
PAINT CHIP(S) [use weight in grams]	(specify color)	PAINT
COAL [use weight in grams]		COAL
CINDERS/CLINKERS [use weight in grams]		CINDERS/CLINKERS
BOG IRON [use weight in grams]		BOG IRON
SLAG [use weight in grams]		SLAG
COMPOSITE FIRE BYPRODUCTS [use weight in grams]		(leave blank)
MICA		MICA
INDETERMINATE MINERAL OBJECT		(specify or INDETERMINATE)

MINERAL
CLAY/MUD/SOIL (03)

OBJECT NAME	
SOIL SAMPLE(S)	SOIL

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
VEGETAL (0002)
WOOD (10)

OBJECT NAME	DESCR1	MATERIAL
BOTTLE CLOSURE(S)	(specify object)	WOOD, CORK
specific Household/Personal Objects (*see p.13)	↓	↓
STRUCTURAL MATERIAL		
specific Tools/Hardware (***see p.13)		
SPECIMEN (UNWORKED) [use wt. in grams if fragmentary]		
WOOD SAMPLE(S)		
CHARCOAL [use weight in grams]		CHARCOAL
ASH		ASH

CLASSIFICATION

VEGETAL
FIBERS (11)

OBJECT NAME	DESCR1	MATERIAL
CLOTHING	(specify object)	COTTON WOOL
specific Household/Personal Objects (*see p.13)	↓	
STRUCTURAL MATERIAL		
specific Tools/Hardware (***see p.13)		
INDETERMINATE TEXTILE(S)		FIBER

CLASSIFICATION

VEGETAL
PAPER (13)

OBJECT NAME
(specify object, e.g. wallpaper fragment)

VEGETAL
OTHER PLANT MATERIALS (14)

OBJECT NAME	DESCR1	MATERIAL
SEED(S)	(specify if possible)	VEGETAL
NUTSHELL(S)	(specify if possible, e.g., walnut)	NUTSHELL
FLOTATION SAMPLE(S)		(leave blank)

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (HI)
ANIMAL (0003)
SHELL/CORAL (20)

OBJECT NAME	DESCR1	DESCR2
BUTTON(S)		
specific Household/ Personal Objects (*see p.13)		
SPECIMEN (UNWORKED) [weight in grams]	BIVALVE UNIVALVE INDETERMINATE SHELL CORAL	species (**see p.13)

ARCHEOLOGY
HISTORIC
ANIMAL
BONE/IVORY (21)

OBJECT NAME	DESCR1	DESCR2
BUTTON(S)		
specific Household/ Personal Objects (*see p.13)		
specific Tools/ Hardware Objects (***see p.13)		
SPECIMEN (UNWORKED)	FISH, MAMMAL, BIRD, INDETERMINATE specify other	DIAGNOSTIC UNDIAGNOSTIC TOOTH

ARCHEOLOGY
HISTORIC
ANIMAL
HIDE/HAIR (23)

OBJECT NAME	DESCR1	MATERIAL
CLOTHING	(specify object) ↓	LEATHER
FOOTWEAR		FUR
BUTTON(S)		HAIR
specific Household/ Personal Objects (*see p.13)		
specific Tools/ Hardware Objects (***see p.13)		
INDETERMINATE LEATHER		

CLASSIFICATION

ARCHEOLOGY (A)
HISTORIC (or PREHISTORIC) (HI or PR)
HUMAN REMAINS (0004)
OSTEOLOGICAL (30)

OBJECT NAME

TOOTH
BONE (and type)

CLASSIFICATION

ARCHEOLOGY (A)
PREHISTORIC (PR)
MINERAL (0001)
STONE (01)

OBJECT NAME	DESCR1	DESCR2	DESCR3**
FIRE-CRACKED ROCK [wt. in grams]			
GROUNDSTONE	PESTLE MORTAR (specify other)		
CHIPPED STONE	PROJECTILE POINT(S)	(specify point type)*	BASAL FRAGMENT
		INDETERMINATE	
		INDETERMINATE	POSSIBLE (specify type)
	BIFACE(S)	BIFACIAL IMPLEMENT BLADE*; EDGE TOOL*	BASAL FRAGMENT; TIP FRAGMENT; MIDSECTION FRAGMENT; REWORKED POINT; SHAPE*
	UNIFACE(S)	EDGE TOOL*	SHAPE*

(as one lot):	CORE(S) - (specify ct.)	[DESCR1]
	SHATTER/BLOCK - (ct.)	[DESCR2]
	DECORTICATION FLAKE(S) - (ct.)	[DESCR3]
	FLAKE(S) - (ct.)	[DESCR4]

MATERIAL

FELSITE, QUARTZITE, QUARTZ, SAUGUS JASPER, CHERT, ARGILLITE, OTHER, UNKNOWN

ARCHEOLOGY
PREHISTORIC
MINERAL
CERAMIC (02)

OBJECT NAME	DESCR1	DESCR2
BODY SHERD(S) RIM SHERD(S) BASAL SHERD(S)	(specify temper)	(specify surface decoration)

---

* Refer to MHC Artifact Classification System (1984:140-145); also see p.13 of this document.

CLASSIFICATION

ARCHEOLOGY (A)
PREHISTORIC (PR)
ANIMAL (0003)
SHELL/CORAL (20)

OBJECT NAME

specify object
SPECIMEN (UNWORKED)

ARCHEOLOGY
PREHISTORIC
ANIMAL
BONE/IVORY (21)

OBJECT NAME	DESCR1
TOOTH	
specify object	
SPECIMEN (UNWORKED)	(see Historic/Bone sheet)

ARCHEOLOGY
PREHISTORIC
ANIMAL
ANTLER/HORN (22)

OBJECT NAME

specify object
SPECIMEN (UNWORKED)

CLASSIFICATION

ARCHEOLOGY (A)
PREHISTORIC (PR)
VEGETAL (0002)
WOOD (10)

OBJECT NAME	MATERIAL
CHARCOAL	CHARCOAL
C-14 SAMPLES	
(specify other)	

ARCHEOLOGY
PREHISTORIC
VEGETAL
OTHER PLANT MATERIALS (14)

OBJECT NAME
FOOD REMAINS
FOOD REMAINS, BURNED

ARCHEOLOGY
HISTORIC or PREHISTORIC or UNKNOWN (UN)
UNIDENTIFIED MATERIAL (0005)
UNIDENTIFIED (40)

OBJECT NAME	MATERIAL
UNIDENTIFIED OBJECT	INDETERMINATE

HOUSEHOLD AND PERSONAL OBJECTS*

TABLEWARE
KITCHENWARE
FURNITURE AND HARDWARE
LIGHTING FIXTURE(S)
DECORATIVE OBJECT(S)
TOILETRIES
STATIONERY
COINS/TOKENS/MEDALS
PERSONAL OBJECT(S)
TOY(S)

TOOLS AND HARDWARE***

OTHER BUILDERS' HARDWARE
WINDOW HARDWARE
DOOR HARDWARE
ELECTRICAL HARDWARE
PLUMBING HARDWARE
LIGHTING/HEATING HARDWARE
HAND TOOL(S)
MACHINE PART(S)
DOMESTIC ANIMAL GEAR
TRANSPORTATION OBJECT(S)
WEAPONRY/ACCOUTREMENTS

UNIVALVES**

BUSYCON CANALICULATUM
CREPIDULA FORNICATA
NASSARIUS OBSOLETUS
POLINICES DUPLICATUS
UROSALPINX CINEREA
OTHER GASTROPODS
INDETERMINATE UNIVALVE

BIVALVES**

MERCENARIA MERCENARIA
CRASSOSTREA VIRGINICA
MYA ARENARIA
ENSIS DIRECTUS
ARGOPECTEN IRRADIANS
SPISULA SOLIDISSIMA
MYTILUS EDULIS
MODIOLUS MODIOLUS
OTHER MARINE BIVALVES
INDETERMINATE BIVALVES

Appendix 5

Catalog Placement of Miscellaneous Artifacts

Object Name Category	Artifact
Footwear	leather shoe parts, slipper parts, rubber shoe soles
Other Fasteners	clothing rivet, cuff links, clothing stud
Tableware	utensil handle, fork, knife, spoon, napkin ring
Kitchenware	tin can fragments, sardine can key, bottle/can opener, pots and pans, stove parts, fireplace hook, corkscrew, whisk, colander, trivet, egg beater, salt/pepper shaker, canning jar, opal glass insert for canning jar, lead seal for canning jar, aluminum foil, canning jar lid
Furniture and Hardware	ornamental shelf bracket, plant hanger, drapery hooks, picture hanger hooks, drawer knob, furniture latches, drawer handle, casters
Lighting Fixtures	light bulb, lamp chimney fragments, lamp globe fragments, oil lamp parts, candle snuffer, flashlight parts, wax candles
Decorative Objects	clock parts, candy dish, press molded vessel, chandelier crystal wall crucifix, porcelain figurines
Toiletries	toothbrush, comb, hair pin, wig curler, eye wash cup
Stationery	pen, ruler, pencil, pencil lead, slate pencil, ink well, paper clip
Personal Objects	bead, sewing accessories, snuff box, jewelry, corset stays, purse handle, umbrella parts, mirror,shoe dye bottle, cosmetic containers, scissors, pocket knife, eye glasses, false teeth

Toys	marble, doll part, toy wheels, Jews harp, rubber ball pieces, ice skate blades
Window Hardware	window hinges, glazing points, turned lead window casing, sash weight, window putty
Door Hardware	door latch, door hinge, door knob, keyhole escutcheon
Electrical Hardware	insulated wire, car lighter, carbon battery rod, battery cap, glass insulator, porcelain insulator
Plumbing Hardware	faucet, pipe, spigot
Miscellaneous Hardware	eye bolt, screw eye, padlock, nut, keyhole escutcheon (not from door), springs, pintle hinge, iron rod, iron bar, iron ring, barbed wire, hook, wire, strap metal, washer, chain link, pulley, plumb bob
Structural Material	roofing slate, slab marble, brick tile, ceramic tile, gravestone, drain pipe, asphalt roofing, tar paper, sheet metal, concrete, cement, mortar/plaster, brick, paint lumps, wall paper, fiberglass insulation, caulking
Hand Tools	file, axe head, saw blade, shovel head, wedge, sharpening stone
Machine Parts	plow blade, moveable type
Domestic Animal Gear	horseshoe, oxshoe, pony shoe, bit, harness buckle
Transportation Objects	car parts, bicycle parts, railroad spike
Weaponry and Accoutrements	musket ball, bullet, gun shell casing, gun parts, spurs

Appendix 6

Summary Artifact Inventory
SAIR Accession #s 13, 43, 45

Appendix 6

Summary Artifact Inventory for SAIR Accession #s 13, 43, 45

ACCESSION #:	13		43	45
	Counts	% Historic Ceramics	Counts	Counts
HISTORIC VESSEL CERAMICS				
Redware				
Plain	523		0	0
Lead Glazed, 1 Surface	747		15	0
Lead Glazed, 2 Surfaces	192		4	1
Sgraffito	0		0	0
Trailed Slipware	24		0	0
Jackfield	3		0	0
Astbury	13		0	0
Other	47		0	0
Total Redware	1549	24.6	19	1
Tin Enamel				
Delft	12		0	0
Rouen/Faience	0		0	0
Other	0		0	0
Total Tin Enamel	12	0.2	0	0
Coarse Buff-Body				
Combed Ware	20		0	0
Dotted Ware	2		0	0
N. Devon Gravel	0		0	0
Mottled	0		0	0
Other	3		0	0
Total Coarse Buff-Body	25	0.4	0	0
Creamware				
Plain	430		1	0
Shell-Edged	3		0	0
Other Edge-Decorated	0		0	0
Handpainted	14		0	0
Annular	1		0	0
Transfer-Printed	3		0	0
Sponge-Decorated	0		0	0
Other	4		0	0
Total Creamware	455	7.2	1	0
Pearlware				
Plain	374		1	0
Shell-Edged	72		0	0
Other Edge-Decorated	3		0	0
Handpainted	116		3	0
Annular	13		0	0
Transfer-Printed	45		4	0
Sponge-Decorated	0		0	0
Other	11		0	0
Total Pearlware	634	10.1	8	0

ACCESSION #:	------13	-----------	--43--	--45--
	Counts	% Historic Ceramics	Counts	Counts
Whiteware				
Plain	1720		0	0
Shell-Edged	108		4	0
Other Edge-Decorated	25		0	0
Handpainted	307		0	0
Annular	112		1	0
Transfer-Printed	502		6	0
Sponge-Decorated	51		0	0
Other	75		0	0
Total Whiteware	2900	46.0	11	0
Other Earthenware				
Whieldon Ware	1		0	0
Lusterware	0		0	0
Agateware	0		0	0
Rockingham/Bennington	85		1	0
Yelloware	191		1	0
Unidentified Earthenware	146		1	0
Total Other Earthenware	423	6.7	3	0
Porcelain				
Undecorated	61		0	0
Underglaze HP Monochrome	18		2	0
Underglaze HP Polychrome	2		0	0
Overglaze HP Monochrome	11		0	0
Overglaze HP Polychrome	11		0	0
Gilted	5		0	0
Transfer-Printed	1		0	0
Other	31		0	0
Total Porcelain	140	2.2	2	0
White Salt Glazed Stoneware				
Plain	17		1	0
Molded	4		0	0
Scratch Blue	7		0	0
Other	2		0	0
Total WSG	30	0.5	1	0
Drybody Stoneware				
Black Basalte	0		0	0
Rosso Antico	0		0	0
Total Drybody	0	0.0	0	0
Other Stoneware				
Nottingham	5		0	0
Bellarmine/Frechen	0		0	0
Westerwald/Raeren	28		0	0
Domestic	55		0	0
Unidentified	44		0	1
Total Other Stoneware	132	2.1	0	1
TOTAL HISTORIC CERAMICS	6300	100.0	45	2
% OF TOTAL ASSEMBLAGE	40.9			

ACCESSION #:	13			43		45
	Counts	Weights (grams)	% Total Artifacts	Cts.	Wts.	Cts.
TOBACCO PIPES (White Clay)						
Bowls	87			0		5
Stems: 4/64	34			0		0
5/64	96			0		0
6/64	29			0		0
7/64	8			0		0
8/64	2			0		0
9/64	0			0		0
Indet.	19			0		0
TOTAL PIPES	275		1.8%	0		5
BOTTLE GLASS						
Freeblown	47			2		1
Contact Molded	586			5		0
Pattern Molded	0			0		0
Press Molded	1			0		0
Optic Molded	0			0		0
Machine Made	81			0		0
Indeterminate	144			0		0
TOTAL BOTTLE GLASS	859		5.6%	7		1
DRINKING VESSEL GLASS						
Freeblown	0			1		0
Contact Molded	7			5		0
Pattern Molded	1			1		0
Press Molded	8			0		0
Optic Molded	0			0		0
Machine Made	27			0		0
Indeterminate	19			0		0
TOTAL DRINKING VESSEL	62		0.4%	7		0
INDETERMINATE VESSEL GLASS						
Freeblown	1			0		0
Molded	48			0		0
Indeterminate	90			0		0
TOTAL INDET. VESSEL	139		0.9%	0		0
BOTTLE CLOSURES						
Glass	6			0		0
Metal	12			0		0
Wood/Cork	1			0		0
TOTAL BOTTLE CLOSURES	19		0.1%	0		0
APPAREL						
Clothing	0			0		0
Footwear	24			1		0
Buttons	36			1		1
Buckles	4			0		0
Other Fasteners	1			0		0
TOTAL APPAREL	65		0.4%	2		1

ACCESSION #:	13			43		45
	Counts	Weights (grams)	% Total Artifacts	Cts.	Wts.	Cts.
HOUSEHOLD & PERSONAL OBJECTS						
Tableware	6			0		0
Kitchenware	13			1		1
Furniture & Hardware	6			0		0
Lighting Fixtures	128			0		0
Decorative Objects	33			0		0
Toiletries	11			0		0
Stationery	9			0		0
Coins/Tokens/Medals	7			0		0
Personal Objects	27			1		0
Toys	16			9		0
TOTAL H & P	256		1.7%	11		1
WINDOW GLASS						
Crown/Cylinder	55			1		0
Plate	495			0		0
Indeterminate	117			0		0
TOTAL WINDOW GLASS	667		4.3%	1		0
NAILS						
Hand Wrought	34			0		0
Machine Cut Indeterminate	597			0		0
Early Machine Cut	202			0		0
Late Machine Cut	561			100		0
Wire	154			1		0
Indeterminate	841			6		0
TOTAL NAILS	2389		15.5%	107		0
OTHER FASTENING DEVICES						
Screws	22			0		0
Staples	0			0		1
Bolts	3			0		0
TOTAL OTHER FASTENERS	25		0.2%	0		1
STRUCTURAL MATERIAL						
Brick		370.8		0		0
Mortar/Plaster		352.0		0		0
Stone	4			1		0
Earthenware/Stoneware	5			0		0
Wood	34			0		0
Synthetic	81			0		0
Other	8			0		0
TOTAL STRUCTURAL	132	722.8	0.9%	1		0

ACCESSION #:	13			43		45
	Counts	Weights (grams)	% Total Artifacts	Cts.	Wts.	Cts.
TOOLS & HARDWARE						
Window Hardware	4			0		0
Door Hardware	8			0		0
Electrical Hardware	3			1		0
Plumbing Hardware	2			0		0
Lighting/Heating Hardware	2			0		0
Hand Tools	12			0		1
Machine Parts	2			0		0
Domestic Animal Gear	2			0		0
Transportation Objects	3			0		0
Weaponry/Accoutrements	2			0		0
Gunflints	1			0		0
Worked Stone/Groundstone	1			0		0
Miscellaneous Hardware	231			4		6
TOTAL TOOLS & HARDWARE	273		1.8%	5		7
FUEL & FIRE BYPRODUCTS						
Coal		116.0		0		0
Cinders/Clinkers		38.4		0		0
Bog Iron		25.6		0		0
Slag		1996.2		0		0
TOTAL FUEL & FIRE		2176.2		0		0
SHELL						
Bivalves	1	605.4			97.2	0
Univalves		91.8			0.0	0
Indeterminate Shell		4.0			0.0	0
Coral		19.5			0.0	0
TOTAL SHELL	1	720.7			97.2	0
BONE						
Fish	8			0		0
Mammal	912			7		0
Bird	43			0		0
Indeterminate	4			0		0
TOTAL BONE	967		6.3%	7		0
MISCELLANEOUS						
Indeterminate Metal Objects	662			1		0
Other Indeterminate Objects	46			0		0
Other	9			0		0
TOTAL MISCELLANEOUS	717		4.6%	1		0
TOTAL HISTORIC ARTIFACTS	13146	3619.7	85.3%	194	97.2	18

ACCESSION #:	13			43		45
	Counts	Weights (grams)	% Total Artifacts	Cts.	Wts.	Cts.
PREHISTORIC CHIPPED STONE						
Projectile Points	12			0		0
Bifaces	39			0		0
Unifaces	6			0		0
Cores	2			0		0
Shatter/Block	11			0		0
Decortication Flakes	285			0		0
Flakes	1910			0		0
TOTAL CHIPPED STONE	2265		14.7%	0		0
PREHISTORIC CERAMICS	5	24.9	0.03%	0		0
TOTAL PREHISTORIC ARTIFACTS	2270	24.9	14.7%	0		0
TOTAL ARTIFACT ASSEMBLAGE	15416	3644.6	100.0%	194	97.2	18

Appendix 7

Structures on the Iron Works Property*

Cummings' Structure #	Structure	Period of Construction	First Mention	Last Mention	Gone By
1	Thomas Dexter's Farmhouse	bef. 1639	1639	1653	1676?
2	Dexter Barn	bef. 1647	1653	1680	?
3	New Cowhouse	ca. 1653	1653	1653	?
4	Leader-Gifford House (constructed by Richard Leader for management of Iron Works)	1647-1650	1653	1676?	?
5	Leader-Gifford Washhouse	bef. 1653	1653	1653	?
6	New Ox House	ca. 1651	ca. 1651	ca. 1651	?
7	New Barn	ca. 1653	1653	1653	?
8-22	Various workers' houses (see Cummings 1975:10-11)	ca. 1650-1653	ca. 1650-1653	ca.1650-1653	?
+ 23	Appleton-Taylor-Mansfield House (the extant "Iron Works House")	1676-1683	1683	----	Extant
24	Habberfield Fulling Mill (on parcel spanning both sides of river north of Iron Works site near dam; sold in 1686)	1684-1686	1687	1709	1753
25	Habberfield Dwelling House	1684-1686	1687	1709	1753
26	James Taylor's Corn Mill (next to river, north of Iron Works near Elm St.)	bef. 1716	1716	1826	1834?
+ 27	Brick Kitchen ("in yard of house"; smith shop joined to kitchen)	1688-1724	1724	1749	1756
+ 28	Long Barn	bef. 1724	1724	1750	not traced
29	Lowermost Barn ("standing in the Neck"; probably bet. river, Rhodes Brook, and Central St., southeast of site)	bef. 1724	1724	not traced	
30	Sheep Barn (in "Neck", as above)	bef. 1724	1724	not traced	

Appendix 7 (cont.)

Cummings' Structure #	Structure	Period of Construction	First Mention	Last Mention	Gone By
31	Northernmost Barn (north of Iron Works; just below modern Appleton St.)	bef. 1724	1724	1729	1751?
32	Thrashing Barn (probably near modern Prospect St., south of site)	bef. 1724	1724	not traced	
33	Corn Barn No. 1 (near Main + Central Streets)	bef. 1724	1724	not traced	
34	Stable (near Main + Central Streets; also "small buildings" noted)	bef. 1724	1724	not traced	
35	Cider Mill	bef. 1724	1724	not traced	
36	Thomas Mansfield I House	1742-1753	1753	not traced after 1869	
37	Daniel Mansfield's Fulling Mill (north of site, near Central and Elm Streets)	1742-1753	1753	1777	1784
38	Mansfield Clothier Shop (near Central + Elm Sts.)	bef. 1758	1758	1777	not traced
39	Mansfield "Dye House and Copper" (near Central + Elm Sts.)	bef. 1758	1758	1777	not traced
40	Saw Mill (known as "Sweetzer's Mills" after 1794)	1783-1786	1786	1815	1826?
41	Chocolate Mill(and other bldgs)	1794-1815	1815	1826	1834?
42	Morocco Leather Factory (north of site; on site of later Scott's Factory)	1811-1812	1812	1828	1838?
43	Thomas Mansfield III House (north of site near Scott's Factory; on 1884 atlas)	bef. 1821	1821	not traced after 1860	
44	Thomas Mansfield III Corn Barn	bef. 1811	1811	1821	not traced after 1860

Appendix 7 (cont.)

Cummings' Structure #	Structure	Period of Construction	First Mention	Last Mention	Gone By
+ 45	William Roby Barn (near Iron Works House, on site of Thomas Mansfield House)	ca. 1745-1756	1756	1809	1821
+ 46	Shoemaker's Shop(Thomas Mansfield)	bef. 1793	1793	1811	1811
+ 47	Carpenter's Work Shop (Samuel Mansfield's; near house)	bef. 1809	1809	1915?	1916?
+ 48	Corn Barn No. 2 (near house; possibly same as Str. #47)	bef. 1809	1809		?
+ 49	Thomas Mansfield's "New House" (just south of Iron Works House)	ca. 1820	1821	removed by NPS, 1976	
+ 50	Thomas Mansfield "Little Barn"	bef. 1821	1821	1825? 1905?	1889? 1916?
+ 51	Thomas Mansfield Shed (proposed location in front of Iron Works House as per 1915 photos)	bef. 1825	1825	1889	1916

* from Cummings 1975
+ near Iron Works House

Appendix 8

Transcription of Moran's Discussion with L. Edward Guy

5/27/76 Thurs. Visit from Mr. Guy

1. Indian burial: between museum door & kitchen. Excavation for water pipe between structures; burial with "hundreds of arrow heads & spear pts." encountered about 2.0 Ft. B. Surf. [below surface]. No metal.

2. Well - old stone well converted into septic tank 15 Ft. South of cherry tree (planted by him, also lilacs).

3. Addition to house - living quarters for Guy family c. 1915- new materials; not brought up intact.
   5/28/76 - Guy returned - old pixs [pictures]; addition was there, merely extented, new roof.

4. 1st Work Shop - Wt. [white] building in early 20th c. photos; shop while new shop const. [constructed] from warehouse parts ("breweries") from Brown's Wharf. No foundations; stone footings.

5. Barn? foundation aligned E-W, N. of lilacs, about same size as forge/museum building; under later Greystone Rd. surface. Stones removed.

6. 2nd barn standing N & W of museum, about same size; had been used for living quarters.

7. Chix [chicken] coops - west of museum, axis E-W.

Appendix 9

Artifact Assemblage From Excavation Units Associated With Feature 1, the Stone Foundation*

	Interior Fill					Mixed Deposit: Interior Fill/ Foundation/Exterior Soils						Exterior Soils		
	x=1	x=1	x=2	x=2	x=2	x=4	x=4							
	n=1	n=2	n=3	n=2	n=2	n=5	n=6	x&n=4	x&n=2	n=1	Floor	n=1	n=1	n=1
	L1	L2	L3	L4	L5	L1	L2	L3	L4	L5	Sample	L1	L2	L3
HISTORIC CERAMICS														
Redware	11	10	13	7	5	26	16	60	7			6	6	
Delft			2				1		1	1				
Coarse Buff-Body			1				1							
Creamware	1					6								
Pearlware	3	3			1	7	2	4				2	3	
Whiteware	27	12				83	30	3				6	5	
Rockingham/Bennington	1					8								
Yelloware						9	2							
Porcelain	1			1		1	3		1					
White Salt-Glazed Stoneware						1								
Westerwald						1		1	1					
Other	1					8	2							
TOTAL	45	25	16	8	6	149	58	68	10	1		14	14	
BOTTLE GLASS														
Freeblown			2		1		1					2		
Contact Molded	45					16	5	1					1	
Machine Made						4								
Indeterminate		7							2					
TOTAL	45	7	2		1	24	12	1	2			2	1	
NAILS														
Hand Wrought		1					3							
Machine Cut	37	2	1		1	85	40	4	4			3	1	
Wire	2	1				3								
Indeterminate		15	2	3	1	10	20		2			1		
TOTAL	39	19	3	3	2	98	63	4	6			4	1	
OTHER														
Pipes		3	2	7	6	9	7	5				1	2	
Other Cer					1									
Other Glass	24	11	2	5	3	33	23	4	4	1		3	2	
Other Metal	14	7		14	14	29	8	14	14					
Bone	5	13	12	22	21	30	14	9	6	4		4	6	2
Shell	9.3g	2.3g	.6g	46.1g	1.7g	56.3g	40.8g	73g	19g	29.9g			17.5g	
Mortar/Plaster							272.2g							
Slag								40.1g			419.9g			
Prehistoric Chipped Stone	7	2	17	11	2	37	46	82	9			1	2	2
Other	.7g	1.6g	1.1g			3	98		1					
TOTAL	179	87	54	70	56	412	329	187	52	6	419.9g	29	28	4

* Proveniences combined as per Table 11.
n = # of proveniences w/artifacts from specified level; x = # of e.u.'s w/specified level.

Appendix 10

Artifact Assemblage from Excavation Units Associated with Feature 2, Associated with Feature 2, the Possible Waterway, in Sector 2E1 +

	[E16:all in fea]		[E16:part in, part out of feature]					[E38: all in feature]						
PROVENIENCE:	S55.5-58, Lot 2	S55.5-58, Lot 2 9-14"	S45-53, Lot 1 12-15"	S45-53, Lot 2 12-15"	S45-53, Lot 2	S55.5-63, Lot 2, 10-43"	Total	S70-72.5 F1 Lot 2	70-75 F1 Lot 2, 11-22"	70-77.5 F2 Lot 2, 48"	S72-75 F1 Lot 2, 13"	S77.5 Lot 2, 12-14"	S77.5 Lot 2, 18"	Total
CERAMICS														
Redware		3		1			4							
White Salt-Glazed														
Westerwald														
Astbury														
Porcelain		1					1							
Creamware		1		1			2							
Pearlware														
Whiteware		12		2	1		15							
Rockingham/Bennington		1					1							
Yelloware				1			1							
Domestic Stoneware		1					1							
Other		2					2							
TOTAL		21		5	1		27							
TOBACCO PIPES														
GLASS														
Freeblown														
Contact Molded		2		3			5							
Indeterminate		1					1		1					1
TOTAL		3		3			6		1					1
SLAG								142.0g	46.7g	246.6g		235.8g	653.0g	1324.1g
BOG IRON								13.1g						13.1g
NAILS														
Hand Wrought														
Machine Cut		1	2	8			11		1		2			3
Wire														
Indeterminate		7	3			1	11							
TOTAL		8	5	8		1	22		1		2			3
OTHER														
Shell			*			*	*		*					*
Bone			1				1							
Chipped Stone	1			1		4	6	3		3	6		5	17
Toy														
Press-Molded Vessel		2					2							
Brick								*						*
Screw		1					1							
Window Glass		2	2	2			6							
Drinking Vessel				1			1							
Indt. Metal Objects						1	1							
TOTAL	1	37	8	20	1	6	73	3	2	3	8	slag	5	21

+ All Proveniences, as per Table 12, represent soils possibly below disturbed loamy stratum.
* Indicates presence of weighed artifacts other than slag or bog iron.

Appendix 10 (cont.)

	E48: all in feature									
PROVENIENCE:	S72.5-77.5 F1 L2 42"	S77.5 F1 L2 26"+	S77.5 F1 L3 4'10"	S77.5 Rock-fill	S80 F1 L2, 10-11"	S80 Rubble Fill	S82.5 Lot 2	S85 L2	S87.5 Lot 2	Total
CERAMICS										
Redware			1		7	9		2	1	20
White Salt-Glazed							1			1
Westerwald		1								1
Astbury							12			12
Porcelain								1	1	2
Creamware								1		1
Pearlware									1	1
Whiteware							4	2	1	7
Rockingham/Bennington										
Yelloware									2	2
Domestic Stoneware										
Other							1			1
TOTAL		1	1		7	9	18	6	6	48
TOBACCO PIPES						1	2			3
GLASS										
Freeblown						3				3
Contact Molded								2		2
Indeterminate					1			1	1	3
TOTAL					1	3		3	1	8
SLAG										
BOG IRON										
NAILS										
Hand Wrought							1			1
Machine Cut			1	1	1	1	3		2	9
Wire										
Indeterminate										
TOTAL			1	1	1	1	4		2	10
OTHER										
Shell										
Bone	1	1	4	1	5	2	18	12		44
Chipped Stone	1		1				5	1	3	11
Toy								1		1
Press-Molded Vessel										
Brick				*						*
Screw										
Window Glass									3	3
Drinking Vessel										
Indt. Metal Objects	3		4			2	2			11
TOTAL	5	2	11	2	14	18	49	23	15	139

Appendix 10 (cont.)

	[E53: all in feature			]	[E58: part in fea.		]
PROVENIENCE:	S72.5- 77.5 L2	S77.5 L2 10"+	S77.5 L2 11-12"	Total	S80- 85 Lot 2	S80- 85 Lot 2 TR	Total
CERAMICS					1	1	
Redware							
White Salt-Glazed							
Westerwald							
Astbury							
Porcelain							
Creamware							
Pearlware							
Whiteware			1	1	1		1
Rockingham/Bennington					1		1
Yelloware							
Domestic Stoneware							
Other							
TOTAL			1	1	2	1	3
TOBACCO PIPES	1	2		3			
GLASS							
Freeblown							
Contact Molded							
Indeterminate							
TOTAL							
SLAG							
BOG IRON							
NAILS							
Hand Wrought							
Machine Cut	1	1		2			
Wire	1			1			
Indeterminate							
TOTAL	2	1		3			
OTHER							
Shell	*			*			
Bone	4			4	1		1
Chipped Stone						1	1
Toy							
Press-Molded Vessel							
Brick							
Screw							
Window Glass					1		1
Drinking Vessel							
Indt. Metal Objects							
TOTAL	7	3	1	11	4	2	6

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North Atlantic Regional Office, National Park Service

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Cultural Resources Management Studies

No. 1	Archeological Resource Study, Roger Williams National Monument. Public Archaeology Laboratory, Brown University, 1979.	NTIS PB81 185134
No. 2	Archeological Overview and Evaluation at Minute Man National Historical Park. Vernon G. Baker, 1980	NTIS PB81 185142
No. 3	Historic Resources Study, Jamaica Bay: A History. Gateway National Recreation Area, New York-New Jersey. Frederick R. Black, 1981.	NTIS PB81 226649
No. 4	Archeological Site Examination: A Case Study in Urban Archeology. Roger Williams National Monument. Patricia E. Rubertone and Joan Gallagher, 1981.	6.00
No. 5	Archeological Resource Study, Historical Archeology at Bunker Hill Monument. Boston National Historical Park. Thomas Mahlstedt, 1981.	NTIS PB83 186957
No. 6	Archeological Investigation at the Narbonne House. Salem Maritime National Historic Site. Geoffrey P. Moran, Edward F. Zimmer, Anne E. Yentsch, 1982.	7.00
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Other Publications

Cultural Resources Inventory, Lowell National Historical Park and Preservation District: Report. Shepley, Bulfinch, Richardson and Abbott, Architects, 1980.	NTIS PB81 189169
The Archeology of Cape Cod National Seashore. Francis P. McManamon and Christopher L. Borstel, 1982. (pamphlet 16 pp.)	1.00